MTR Corporation Limited

Shatin to Central Link
Tai Wai to Hung Hom Section

Contamination Assessment Report for Magazine Site at TKO Area 137

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 3 June 2016

MTR Corporation Limited

Shatin to Central Link
Tai Wai to Hung Hom Section

Contamination Assessment Report for Magazine Site at TKO Area 137

Verified by: Frederick Leong

Position: Independent Environmental Checker

Date: 3 June 2016

MTR Corporation Limited

Shatin to Central Link – Tai Wai to Hung Hom Section - Land Contamination Assessment of Magazine Site at TKO Area 137

Contamination Assessment Report

Draft 3 | June 2016

Job number 216289

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Document Verification

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		Signature			
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Contents

Laboratory Testing Reports

1 Introduction

1.1 Project Background

MTR Corporation Limited (MTRC) commissioned Ove Arup & Partners Hong Kong Limited (Arup) as the Consultant for undertaking the land contamination assessment of Magazine Site at TKO Area 137 (the Site) for the Shatin to Central Link – Tai Wai to Hung Hom Section [SCL(TAW-HUH)].

The Site is located within Area 137, Tseung Kwan O. The temporary above-ground magazine site for the storage of explosives previously used by Kwun Tong Extension (KTE) was handed to the SCL1103 project to support the construction of the drill and blast tunnelling works for the SCL(TAW-HUH) project. The relevant handover certificates are annexed in **Appendix 1.1**.

After the completion of the decommissioning works of the Magazine Site, the land will be handover to the relevant government departments. Location of the Site is shown in **Figure 1.1**.

According to EP Condition 2.36 of the Environmental Permit of SCL(TAW-HUH) (No. EP-438/2012/J), a land contamination assessment for the temporary explosive magazine site at Area 137, Tseung Kwan O shall be carried out. A Contamination Assessment Plan, which detailed the proposal of representative sampling and analysis to determine the nature and extent of contamination, was approved in April 2016. A Contamination Assessment Report (CAR) shall be submitted to document the findings of the land contamination assessment findings. If land contamination is confirmed, a Remedial Action Plan (RAP) shall be submitted to formulate necessary remedial measures. A Remediation Report (RR) shall also be submitted after the completion of the remediation works.

1.2 Objectives

The purpose of this Contamination Assessment Report (CAR) is to document the findings of the land contamination site investigation works, which comprised the following key components:

- Contamination assessment program;
- Investigation procedures and methodologies; and
- Analytical results of soil and groundwater samples.

1.3 Statutory Legislation and Evaluation Criteria

The report is prepared in accordance with the following Technical Memorandum and Guidance Notes:

- Guidance Note for Contamination Land Assessment and Remediation, EPD, August 2007;

- Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management, EPD, December 2007; and
- Practice Guide for Investigation and Remediation of Contaminated Land, EPD, August 2011.
- Annex 19 of the Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO).

1.4 Structure of Report

The structure of this CAR is as follows:

Section 1 describes the background, objectives and scope of work of the project as well as the content structure of this CAR;

Section 2 describes the approach to assessment in accordance with the approved CAP;

Section 3 describes the conducted site investigation works for soil and ground water sampling;

Section 4 presents the assessment criteria;

Section 5 presents the laboratory test results, results interpretation and investigation findings; and

Section 6 concludes the findings of this CAR.

2 Summary of Sampling and Testing Strategy

2.1 Background

In accordance with the approved CAP, sampling for soil and groundwater were proposed. The sampling locations were determined according to the hotspots identified and estimated within the Site. The testing parameters were proposed as Metals, Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (SVOCs) and Petroleum Carbon Ranges (PCRs).

2.2 Chemicals of Concern

The proposed sampling and testing schedule for the Chemicals of Concerns (COCs) in the Site are summarized in **Table 2.1**.

Table 2.1: Proposed Laboratory Analysis for Different Trial Pits

Trial Pit No.	Sampling Type	Testing Parameters			
		Metals [1]	VOCs	SVOCs	PCRs
TP1 – TP4	Soil at all sampling depths and groundwater	✓	✓	✓	✓

Notes:

1. Only "Mercury" test is required for groundwater sample.

2.3 Proposed Sampling Locations and Depths

The sampling locations and sampling depths proposed in the CAP for the Site are shown in **Table 2.2**. The proposed sampling locations are shown in **Figure 2.1**.

Table 2.2: Sampling Strategy within Project Site

Trial Pit No.	Coordinates		Sampling Strategy	
	Easting	Northing	Termination Level (mbgl) [1]	Frequency of Sampling (mbgl) [1]
TP1	846651	814014	3.0	0.5, 1.5 and 3.0
TP2	846651	814008		
TP3 [2]	846614	813979		
TP4 [2]	846612	813976		

Note:

1. The proposed termination levels are just for reference purpose. The exact termination levels and no. of soil samples of each trial pit should be decided by the on-site Land Contamination Specialist. If sign of contamination is observed during site investigation, further samples may be collected by drilling (if required) and the sampling depths and termination depths would be advised by the on-site Land Contamination Specialist.
2. The coordinates of TP3 and TP4 were estimated based on the relevant base map.

3 Site Investigation Works

3.1 Soil and Groundwater Sampling

3.1.1 Sampling Locations

Site investigation (SI) works were carried out by VINCI Construction Grand Projects between 21 April 2016 and 26 April 2016. Four trial pits, named TP1 to TP4, were excavated for soil and groundwater sampling in accordance with the approved CAP for the Site. To facilitate the SI, structures of the generator room, including the generators had been removed. The on-site Land Contamination Specialist had supervised the whole SI works and determined the actual sampling depths on a point-by-point basis based on the actual site conditions.

For the proposed trial pit locations, trial pit TP2 was excavated as scheduled in the CAP. However, for trial pits TP1, TP3 and TP4, the actual locations of the trial pits were adjusted due to actual on-site conditions.

After removal of the generator room structures, generators, oil drums and drip trays, noticeable oil stains (**Photo 3.1**) were observed on the generator room's concrete slab, where the generator was located, at 3m east of the original proposed trial pit TP1 location. This noticeable oil stains may be caused by the leakage of diesel from the generator, and is considered a potential land contamination sign. Given that the area and extent of the oil stains were larger than the oil stain observed in the original proposed location (i.e. TP1), TP1A is considered a more representative location at the concerned hotspot area for the assessment. As the potential contamination source of the generator room is the leakage of diesel from the generator and the oil drums, it is considered that the oil stain at TP1 and TP1A would be caused by the same contaminant (i.e. diesel). As such, TP1 was then shifted 3m east to TP1A for better investigation to determine the presence and extent of the potential land contamination.

For trial pits TP3 and TP4, as stipulated in the CAP, the waste chemical drums that were identified in the approved EIA report *"Agreement No. CE21/2012 (WS) – Desalination Plant at Tseung Kwan O – Feasibility Study"* (AEIAR 192/2015) (hereinafter referred as "the approved EIA report") were not observed during the site survey in March 2016. The coordinates of TP3 and TP4 were estimated based on the relevant base map of the concerned area which was mentioned in the approved EIA.

During the setting out stage of site investigation, it was observed that trial pits TP3 and TP4 were located on the slope and access road respectively based on the original proposed coordinates in the CAP. As revealed from the approved EIA report, the location of the waste chemical storage drums should be located at the side of the access road and close to the contractor's site office. As such, these two points (i.e. TP3 and TP4) for estimating the 2 trial pits appeared not to be in the exact area of waste chemical drums and required to be adjusted for rectification.

After confirmation with the on-site engineers and further review of the figure and photo records of the approved EIA report, the area of waste chemical drums should

be located 20m and 15m northeast from TP3 and TP4 respectively, which were namely TP3A and TP4A. Comparison between Figure 8A.3c of the approved EIA report and site photo of TP3A & TP4A was shown in **Photo 3.2**. As shown in the photos, TP3A & TP4A are located at the same area where the waste oil drums were located given that the surrounding features (including site office and lamp post etc.) shown in both photos are the same. As such, it is considered and confirmed that the relocated points (i.e. TP3A & TP4A) are the more accurate area representing the waste chemical drums which is the potential hotspot area as stipulated in the CAP and are representative locations to determine the presence and extent of land contamination at the concerned hotspot area for the assessment.

The proposed and as-built sampling locations are summarized in **Table 3.1**. The as-built drawing showing the actual sampling locations is given in **Figure 3.1**.

Table 3.1: Summary of sampling location and termination levels

Trial Pit No.	Proposed Co-ordinates		As-built Co-ordinates		Justification for shifting sampling location
	Easting	Northing	Easting	Northing	
TP1	846651	814014	-	-	Noticeable oil stains on concrete slab were observed at TP1A.
TP1A	-	-	846654	814012	
TP2	846651	814008	846651	814008	-
TP3 [1]	846614	813979	-	-	Based on actual site condition and further review on-site, the actual waste chemical drum storage location was identified to be 15m (for TP4A) and 20m (for TP3A) northeast of the originally proposed location.
TP3A	-	-	846627	813994	
TP4 [1]	846612	813976	-	-	
TP4A	-	-	846622	813986	

Note:
1. The coordinates of TP3 and TP4 were estimated based on the relevant base map.

Table 3.2: Adjusted sampling location summary

Proposed Trial Pit No.	Revised Trial Pit No.	Deviation from Proposed Location
TP1	TP1A	3m east from original location
TP3	TP3A	20m northeast from original location
TP4	TP4A	15m northeast from original location

3.1.2 Soil Sampling

Three disturbed soil samples were collected at each trail pit. Sufficient samples were collected and placed in the pre-cleaned glass sample jar. The jar was filled with no void space for samples to be tested and was properly labelled.

For trial pits TP1A and TP2, as there was approximately 0.5m thick concrete slab on top of the soil, the first sampling depth (i.e. 0.5mbgl) was then adjusted 0.3m below the original proposed sampling depth to 0.8 mbgl. In addition, two disturbed soil samples were also collected at the depths of 1.5mbgl and 3.0mbgl.

For trial pit TP3A, three disturbed soil samples were collected at the depths of 0.5mbgl, 1.5mbgl and 3.0mbgl. For trial pit TP4A, during excavation, concrete slabs were encountered at 1.0mbgl and at 1.3mbgl respectively (**Photo 3.3**). The remaining area without the concrete slabs was further excavated down to collect the soil samples. At 2.4mbgl, another concrete slab was encountered covering the remaining area (**Photo 3.3**). Given the presence and coverage of the concrete slab at the remaining area, it is considered appropriate to terminate the sampling depth at 2.4mbgl and the excavation was then terminated. Disturbed soil samples were therefore collected at the depths of 0.5mbgl, 1.5mbgl and terminated at 2.4mbgl. The actual sampling depth and the sample type taken at each trial pit are summarised in **Table 3.3**.

During the site investigation, no any sign of contamination including decolouration, odour, and waste materials was observed at all sampling locations (**Photo 3.4**). All collected soil samples were stored on ice in portable ice chests between 2℃ - 4℃. Sampling records of trial pits were made of the details of the sampling locations and other pertinent data. A chain-of-custody form was completed for the samples.

Table 3.3: Summary of actual sampling depth and sample type

Trial Pit No.	Sampling Depth (mbgl)	Sample Type
		Disturbed Sample
TP1A	0.8 [1]	✓
	1.5	✓
	3.0	✓
TP2	0.8 [1]	✓
	1.5	✓
	3.0	✓
TP3A	0.5	✓
	1.5	✓
	3.0	✓
TP4A	0.5	✓
	1.5	✓
	2.4 [2]	✓

Note:

1. As there was 0.5m thick concrete slab, the first sampling point (i.e. 0.5mbgl) for TP1A and TP2 were adjusted 0.3m below the original proposed sampling depth to 0.8 mbgl.
2. Terminated at 2.4mbgl due to the encounter of a concrete slab.

3.1.3 Groundwater Sampling

Since no groundwater was encountered at the termination depth for all four trial pits, no groundwater sample was collected.

3.1.4 Decontamination Procedures

Before excavation, the sampler and all equipment in contact with the ground were thoroughly decontaminated prior to use at each trial pit and between each sampling event by phosphate-free detergent to minimize potential cross contamination. During sampling and decontamination activities, disposable latex gloves were worn to prevent the transfer of contaminants from other sources.

3.2 Analytical Parameters

As proposed in the CAP, the soil maples collected were analysed for the parameters in accordance with the sampling and testing schedule shown in **Table 2.1**. The testing parameters included:

- **Metals**: Antimony, Arsenic, Barium, Cadmium, Chromium III, Chromium VI, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Tin and Zinc
- **Volatile Organic Compounds (VOCs)**: Acetone, Benzene, Bromodichloromethane, 2-Butanone, Chloroform, Ethylbenzene, Methyl Tert-Butyl Ether (MTBE), Methylene Chloride, Styrene, Tetrachloroethene, Toluene, Trichloroethene and Xylenes (Total)
- **Semi-volatile Organic Compounds (SVOCs)**: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Bis-(2-Ethylhexyl)phthalate, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Phenol and Pyrene
- **Petroleum Carbon Ranges (PCRs)**: Carbon Ranges C6-C8, C9-C16 and C17-C35

3.3 HOKLAS Accredited Laboratory

Laboratory testing works on the soil were undertaken by "ALS Technichem (HK) Pty Ltd". All laboratory testing methods were accredited by the Hong Kong Laboratory Accreditation Scheme (HOKLAS) or one of its Mutual Recognition Arrangement Partners.

3.4 Strata Logging

Strata logging for trial pits was taken during the course of drilling and sampling by qualified geologists. The logs including the general stratigraphic descriptions, depth of soil sampling, and sample notation are given in **Appendix 3.1**.

4 Assessment Criteria

The assessment criteria have been adopted in accordance with EPD's *Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management*. The RBRGs was categorised into four different post-restoration land uses, namely "Urban Residential", "Rural Residential", "Industrial" and "Public Parks", to reflect the actual settings which people could be exposed to contaminated soil or groundwater. Definitions of the four post-restoration land use categories are given in EPD's *Guidance Note for Contaminated Land Assessment and Remediation and RBRGs Guidance Manual*.

According to the approved EIA report *"Agreement No. CE21/2012 (WS) – Desalination Plant at Tseung Kwan O – Feasibility Study"* (AEIAR 192/2015), the Site will be developed into a desalination plant. Hence, "Industrial" land use will be adopted for result comparison for this land contamination assessment. The RBRGs criteria for soil and soil saturation limits, and RBRGs criteria for groundwater and groundwater solubility limits are given in **Appendix 4.1**.

5 Interpretation of Laboratory Testing Results

5.1 Soil Analysis

A total of 13 soil samples (including 1 duplicate sample) were collected from 4 trial pits during SI under the supervision of on-site Land Contamination Specialist. All available laboratory testing results of the soil samples have been reviewed against the RBRGs criteria. Based on the testing results, no RBRGs exceedance has been identified. Summary of testing results and the laboratory testing reports are given in **Appendices 5.1** and **5.2** respectively.

5.2 Quality Assurance and Quality Control

A proper QA/QC program was conducted according to the approved CAP to the data collected are accurate and representative of actual soil conditions. According to the approved CAP, the QA/QC programme was conducted as follows:

- 1 duplicate sample per 20 samples;
- 1 equipment blank sample per 20 samples;
- 1 field blank sample per 20 samples; and
- 1 trip blank per trip for the analysis of volatile parameters.

As total 12 soil samples were collected in 4 sampling days (21, 22, 25 and 26 April 2016), therefore, 1 duplicates soil sample, 1 equipment blank sample, 1 field blank sample and 4 trip blank had been collected. The results of the QA/QC samples indicated that the data collected are accurate and representative of actual soil conditions.

6 Conclusion

Site investigation works were conducted between 21 April 2016 and 26 April 2016 according to the approved CAP for the Site.

A total of 13 soil samples (including 1 duplicate) were collected from four trial pits. Since no groundwater was encountered at the termination depth for all four trial pits, no groundwater sample was collected.

The testing results indicated that none of the soil samples exceeded the corresponding RBRG level. No contamination was identified on the Site. Therefore, no remediation action is required.

Figures

LEGEND :

PROJECT BOUNDARY

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A	FIRST ISSUE			

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DESIGNED	VL
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DATE	05/2016

MTR

SHATIN TO CENTRAL LINK

ORIGINATOR

ARUP Ove Arup & Partners Hong Kong Limited

CADD REF.

TITLE

SITE LOCATION PLAN

SCALE 1 : 5000 (A3)

DRAWING NO. Figure 1.1

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TP1
TP2
TP3
TP4
+15.4
+6.7
+5.7
5.5+
5.5
Pier
Seawall
HWM
0 2.5 5 7.5 10 12.5
METRES

Sampling ID	Coordinates	
	Easting	Northing
TP1	846651	814014
TP2	846651	814008
TP3	846614	813979
TP4	846612	813976

LEGEND :

PROJECT BOUNDARY

PROPOSED TRIAL PIT LOCATION

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ORIGINATOR

ARUP Ove Arup & Partners Hong Kong Limited

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PROPOSED TRIAL PIT LOCATION

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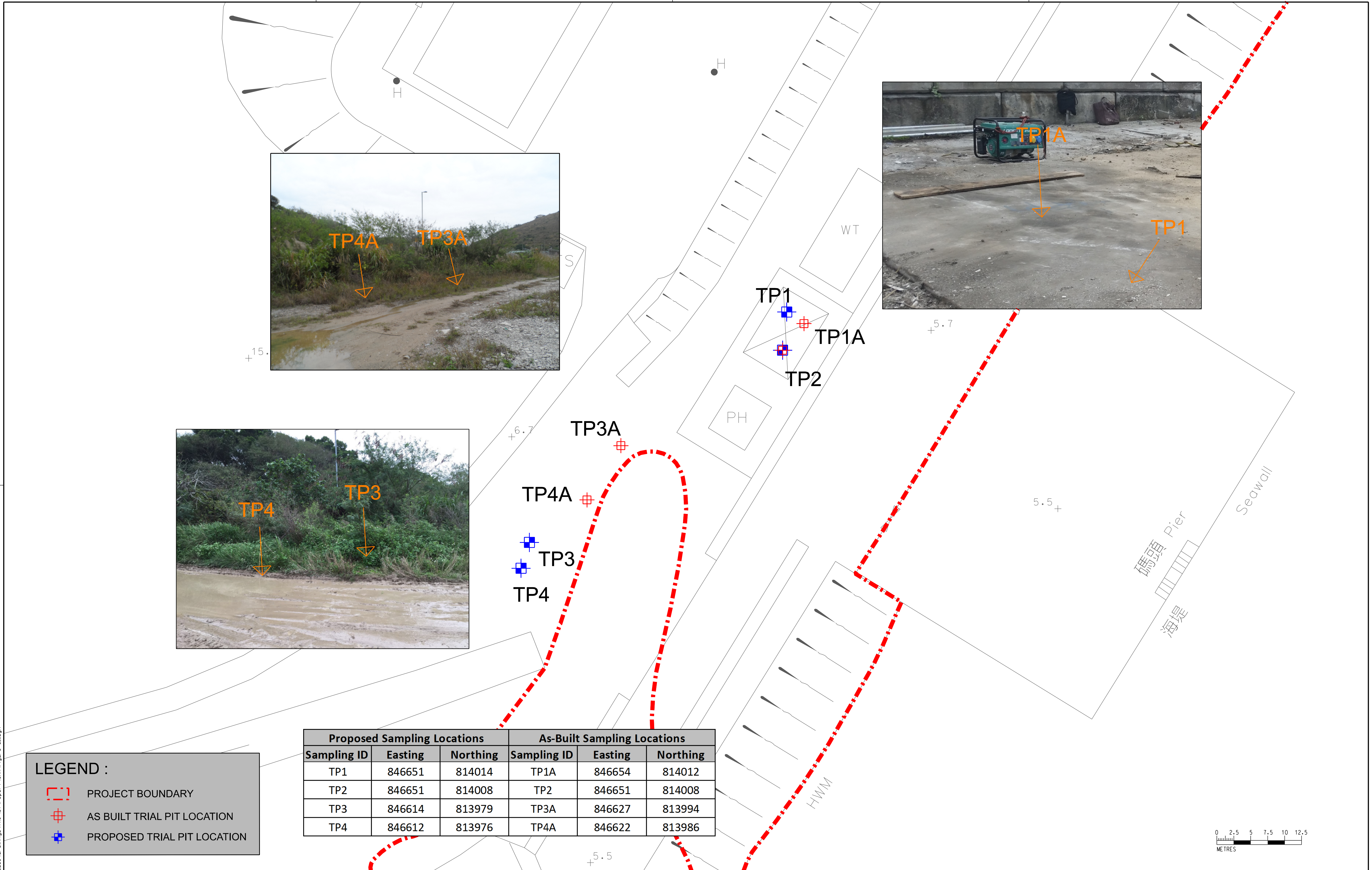

Proposed Sampling Locations			As-Built Sampling Locations		
Sampling ID	Easting	Northing	Sampling ID	Easting	Northing
TP1	846651	814014	TP1A	846654	814012
TP2	846651	814008	TP2	846651	814008
TP3	846614	813979	TP3A	846627	813994
TP4	846612	813976	TP4A	846622	813986

LEGEND :

- PROJECT BOUNDARY
- AS BUILT TRIAL PIT LOCATION
- PROPOSED TRIAL PIT LOCATION

REV	DESCRIPTION	BY	DATE	APPROVED
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DATE	05/2016

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ORIGINATOR

ARUP Ove Arup & Partners Hong Kong Limited

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TITLE

AS BUILT TRIAL PIT LOCATION

SCALE 1 : 500 (A3)

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Photos

Photo 3.1: Site observation of trial pits TP1 and TP1A

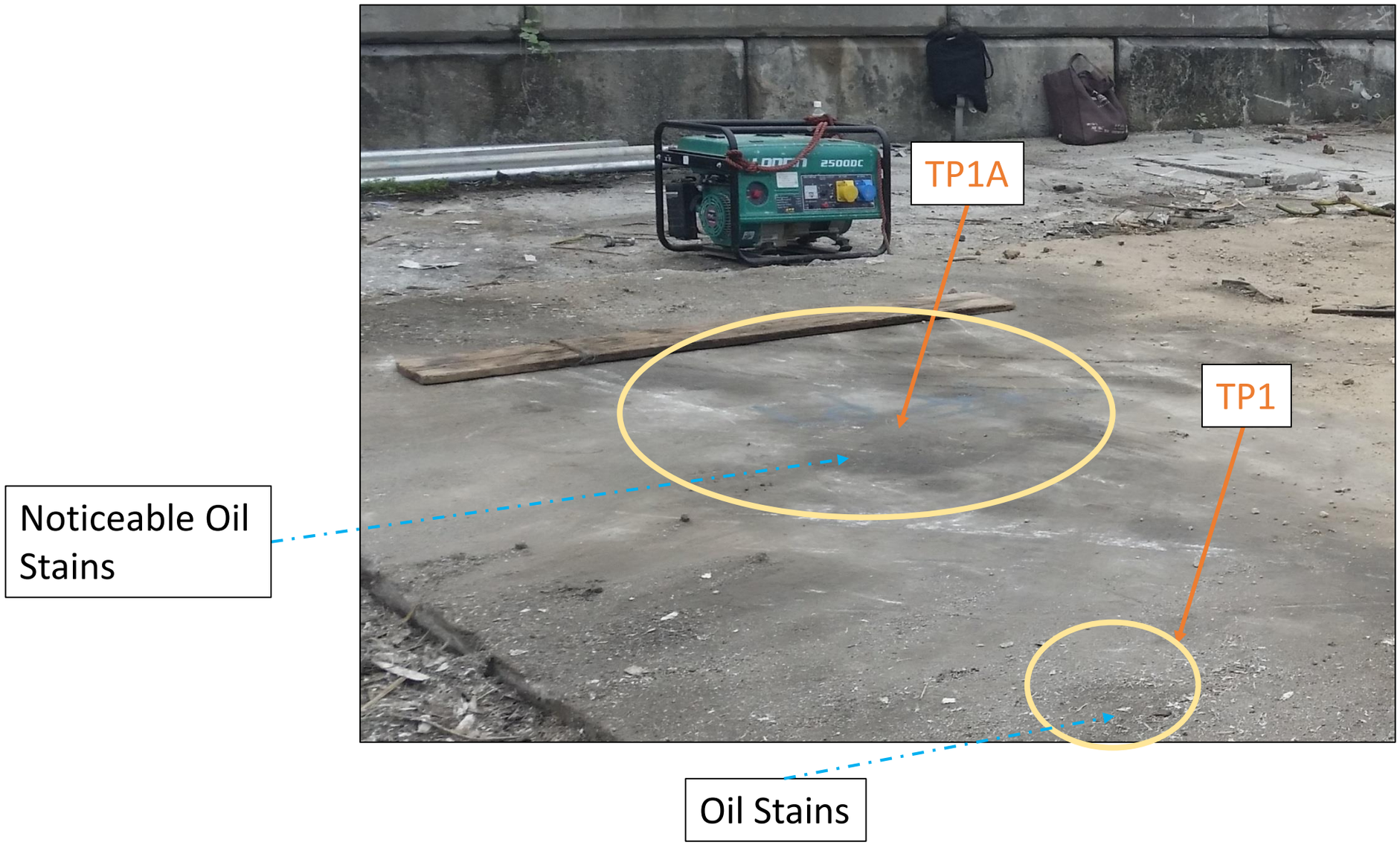
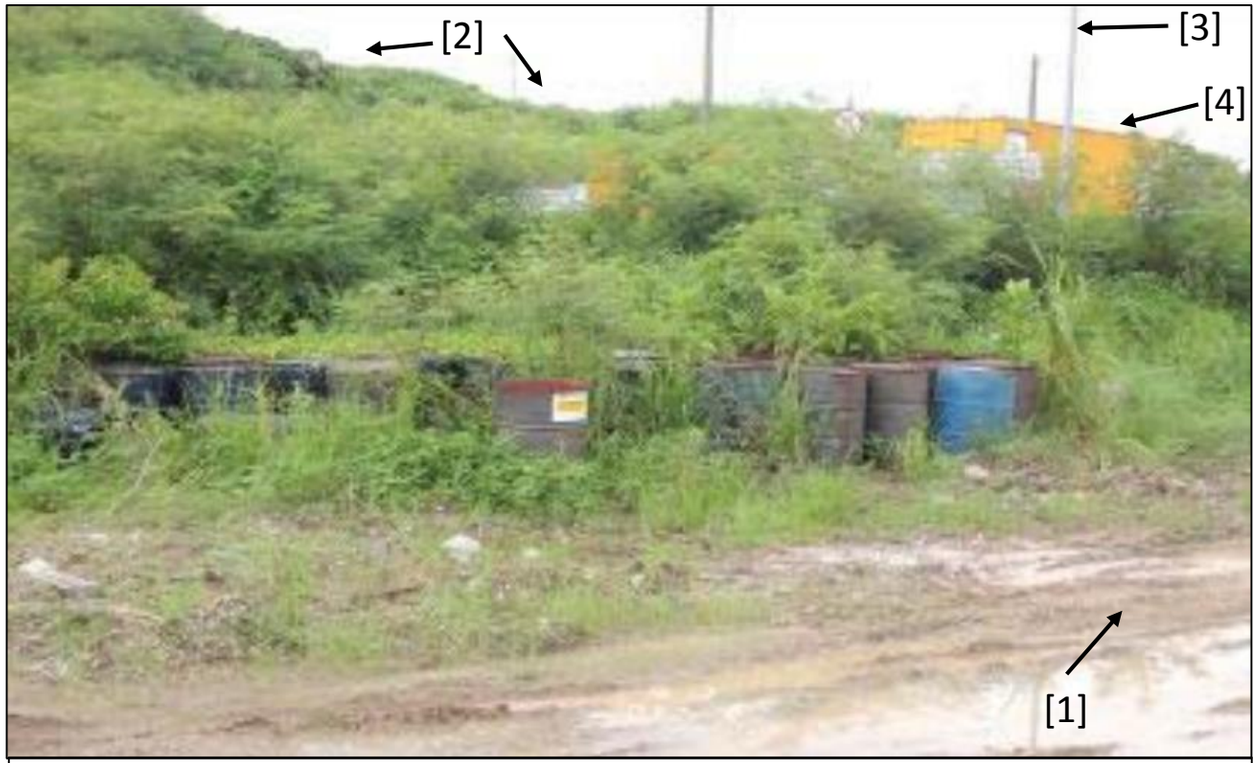
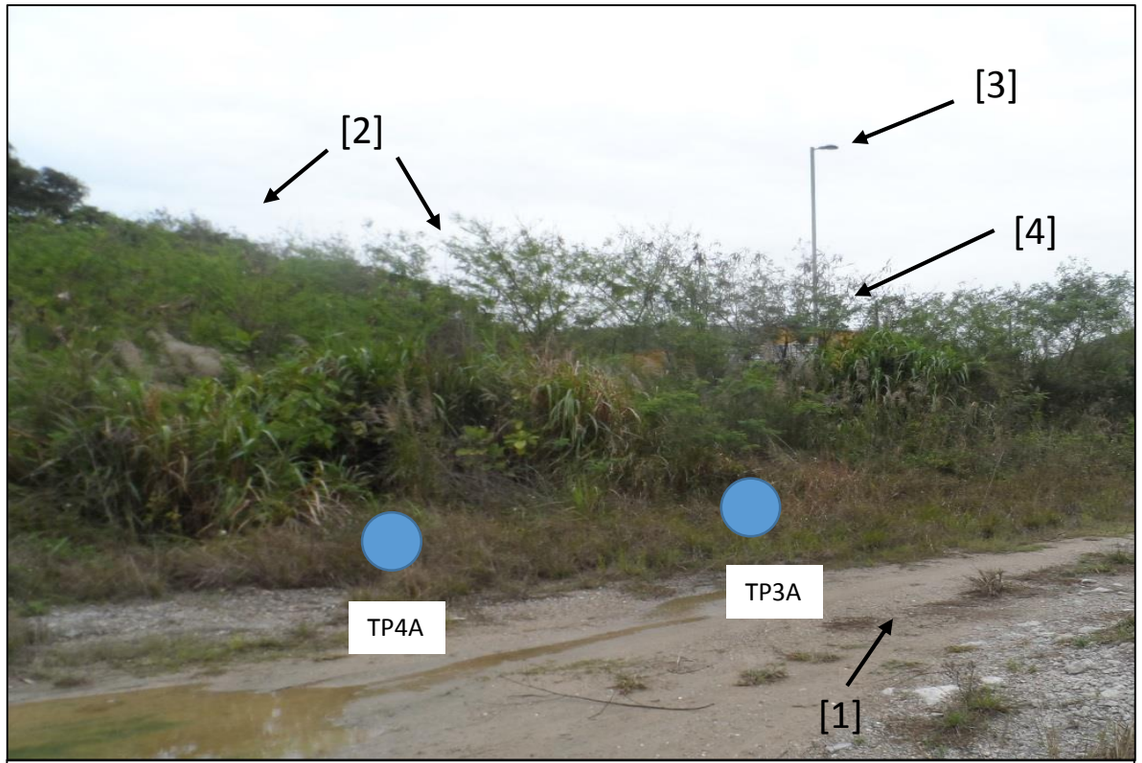


Photo 3.2: Comparison between the approved EIA report and site photos for TP3A and TP4A



From approved EIA report *"Agreement No. CE21/2012 (WS) – Desalination Plant at Tseung Kwan O – Feasibility Study"* (AEIAR 192/2015)



From SCL's site investigation works

Remarks:
[1] Access Road
[2] Slope
[3] Lamp Post
[4] Site Office

Photo 3.3: Trial Pit - TP4A

Concrete slab encountered at 1.0m bgl

Concrete slab encountered at 1.3m bgl

Excavated down to 2.4m bgl and concrete slab was encountered

Photo 3.4: Soil Samples

TP1A 0.8m

TP2 0.8m

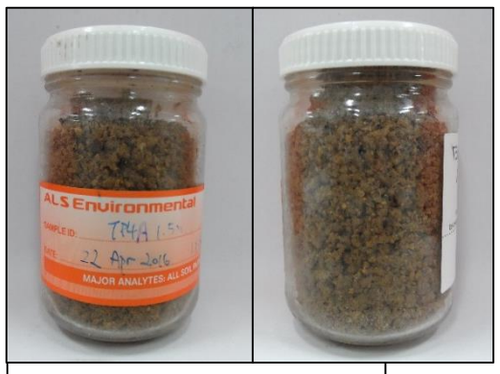
TP3A 0.5m

TP4A 0.5m

TP1A 1.5m

TP2 1.5m

TP3A 1.5m



TP4A 1.5m

TP1A 3.0m

TP2 3.0m

TP3A 3.0m

TP4A 2.4m

Appendix 1.1

Land Handover Certificates

MTR

Land Handover Certificate

Kwun Tong Line Extension
Contract No. 1001
Yau Ma Tei to Whampoa Tunnels and Ho Man Tin Station

Works Areas 1001.W22, 1001.W23 and Adjacent Land
For Temporary Magazine Site at Tseung Kwan O Area 137, Tseung Kwan O

This is to confirm that Nishimatsu Construction Co., Ltd (the Contractor) has handed back the Works Areas 1001.W22, 1001.W23 as shown coloured pink and adjacent land as shown coloured brown on the attached drawing no. SK_515 to MTR Corporation Limited on 28 December 2014.

Attended and signed by:-

Wil (Wilson Chung)

for Land Administration Manager
MTR Corporation Limited

O. Iwata O. IWATA

for Nishimatsu Construction Co., Ltd
(the Contractor)

Sammy (SAMMY Ho)

for Construction Manager
MTR Corporation Limited

WIP May 2007

WIP Jun 2007

WIP May 2007

WIP May 2007

WIP May 2007

WIP Jun 2007

WIP May 2007

1001.W23

1001.W22

TEMPORARY MAGAZINE SITE
AT TSEUNG KWAN O AREA 137

EMERGENCY VEHICLE ACCESS
TO BE MAINTAINED BY THE
CONTRACTOR UNDER THE
SUPPLEMENTARY AGREEMENT
TO STT NO. RDS/KTE-004

鰂魚涌
FAT TONG O

P07/007

大廟灣
JOSS HOUSE BAY

KEY PLAN NOT TO SCALE

LEGEND:

- WORKS AREA BOUNDARY
- PUBLIC ROAD / FOOTPATH
- BOUNDARY OF THE SCHEME

觀仔
KWUN TSAI

鐵爹洲
TIT CHAM CHAU

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APPROVED	DN
DATE	24/DEC/2014

MTR

KWUN TONG LINE EXTENSION

ORIGINATOR

PROJECTS DIVISION | PROGRAMMING AND LAND SECTION

CADD REF. SK_515.dgn

TITLE

CONTRACT 1001
KEY PLAN OF WORKS AREA
APPENDIX 'F1'
SHEET 7 OF 10

SCALE 1 : 1000 (A1)

DRAWING NO. SK_515

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Land Handover Certificate

Shatin to Central Link
Contract No. 1103
Hin Keng to Diamond Hill Tunnels

Magazine Site at Tseung Kwan O
Works Sites 1103.W18 and 1103.W19

The subject Works Area as shown coloured pink on the attached plan no. 1103/T/000/PLD/P08/004B was handed over from MTR Corporation Limited to Vinci Construction Grands Projets (the Contractor) on 28 December 2014.

Attendees :	Claudie Keung	MTR Corporation Limited
	Henry Yu	MTR Corporation Limited
	ARROYO, FLORLITO DE JESUS	Vinci Construction Grands Projets (the Contractor)

Site Particulars:

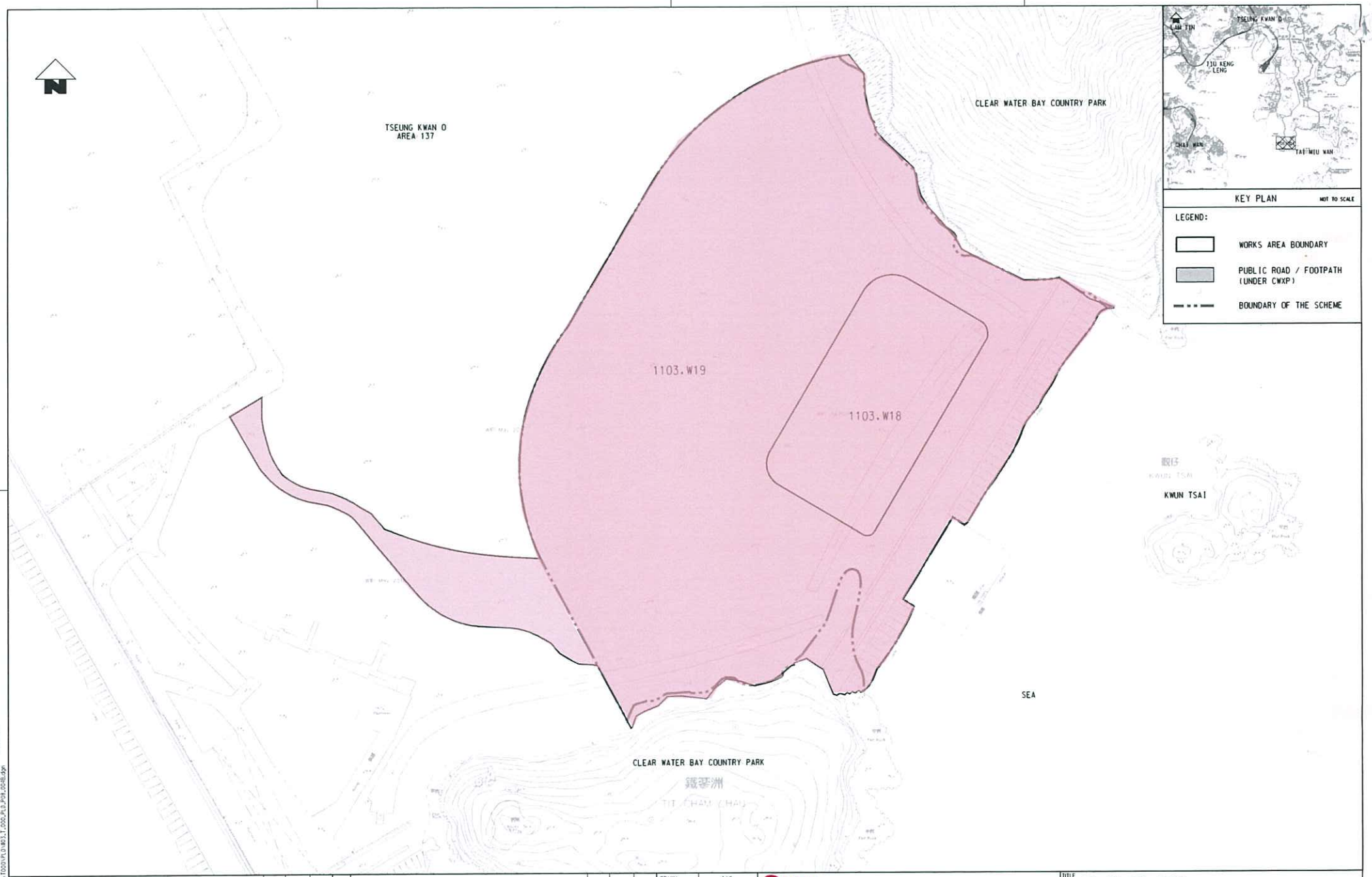
Location	:	As shown coloured pink on the attached plan no. 1103/T/000/PLD/P08/004B
Occupant	:	Vinci Construction Grands Projets (the Contractor)
Date of Possession	:	28 December 2014
Purpose	:	For Contract No. 1103
Remarks	:	Subject to Government Land Allocation – Temporary Railway Development No. 088 (Plan No. RDM1570)

Attended and signed by:-

(Claudie Keung)
for Land Administration Manager
MTR Corporation

(ARROYO, FJ)
for Vinci Construction Grands Projets
(the Contractor)

pp (Henry Yu)
for Construction Manager
MTR Corporation



REV	DESCRIPTION	BY	DATE	APPROVED
B	TENDER ADDENDUM NO.3	CK	MAY12	DN
A	FIRST ISSUE	RC	FEB12	DN

DRAWN	LWL
DESIGNED	RC
CHECKED	CHC
APPROVED	DN
DATE	06/OCT/2011

MTR

SHATIN TO CENTRAL LINK

ORIGINATOR: PROJECTS DIVISION | LAND ADMINISTRATION SECTION

CADD REF. 1103_T_000_PLD_P08_004B.dgn

TITLE
CONTRACT 1103
KEY PLAN OF WORKS AREA
APPENDIX 'F1'
SHEET 4 OF 5

SCALE 1 : 1000 (A1)

DRAWING NO. 1103/T/000/PLD/P08/004

REV. B

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Appendix 3.1

Strata Logging

VINCI CONSTRUCTION GRANDS PROJETS

Project : SHATIN TO CENTRAL LINK HIN KENG TO DIAMOND HILL TUNNELS

Contract No. : 1103

Works Order No.:

Logged by : P. PAK

Date logged : 26 APR 16

Checked by : KARL NG

Date checked : 26 APR 16

Excavation Dates: 21 APR 16 to 25 APR 16

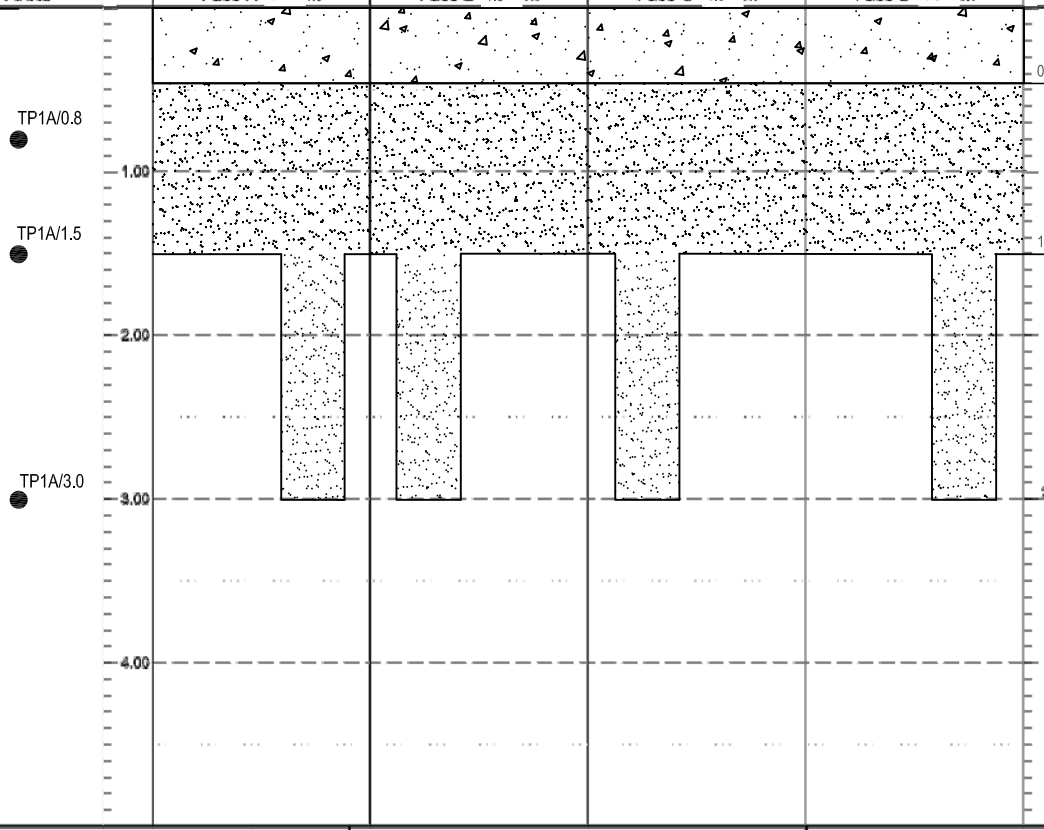
Backfill Date: 26 APR 16

Trial Pit No. TP1A

Co-ordinates : E 846654.3 N 814011.8

Ground Level : 5.6 mPD

TRIAL PIT RECORD

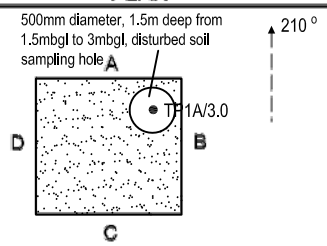


Depth (m)	Legend (Face A)	Description	Grade
0.45		Grey, CONCRETE with steel bar. (CONCRETE SLAB)	
1.50		Dense, moist, yellowish brown, medium to coarse SAND with some angular cobbles and fine to coarse gravel of rock fragment and concrete. (FILL) Base: Same as above	
3.00		Bottom of trial pit at 1.5m depth (max 3.0m)	

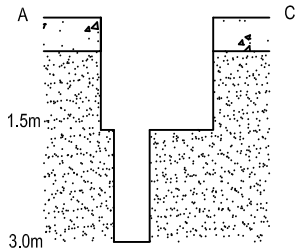
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N - Schmidt Hammer Test

PLAN



SECTION (A-C)



REMARKS

1. **Shoring:** YES
2. **Water Seepage:** NO
3. **Maximum Depth:** 3m (Sampling)
4. **Average Depth:** 1.5m
5. Small disturbed samples taken at 0.8m, 1.5m & 3.0m depth for contamination analysis

VINCI CONSTRUCTION GRANDS PROJETS

Project : SHATIN TO CENTRAL LINK HIN KENG TO DIAMOND HILL TUNNELS

Contract No. : 1103

Works Order No.:

Co-ordinates : E 846651 N 814008

Ground Level : 5.6 mPD

Logged by : P. PAK

Date logged : 26 APR 16

Checked by : KARL NG

Date checked : 26 APR 16

Excavation Dates: 21 APR 16 to 25 APR 16

Backfill Date: 26 APR 16

Trial Pit No. TP2

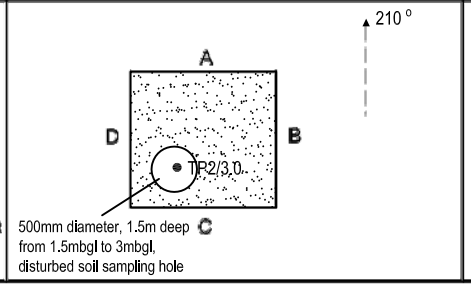
TRIAL PIT RECORD

Sample & Tests	Depth (m)	Sketch (Face A 1.5 m / Face B 1.5 m / Face C 1.5 m / Face D 1.5 m)	Depth (m)	Legend (Face A)	Description	Grade
			0.45		Grey, CONCRETE with steel bar (CONCRETE SLAB)	
TP2/0.8	1.00	Concrete (300mm) / Boulder (400mm)			Dense, moist, yellowish brown, medium to coarse SAND with some angular cobbles and fine to coarse gravel and occasional angular boulders of rock fragment and concrete. (FILL)	
TP2/1.5			1.50		Base: Same as above	
					Bottom of trial pit at 1.5m depth (max 3.0m)	
TP2/3.0	3.00		3.00			
	2.00					
	4.00					

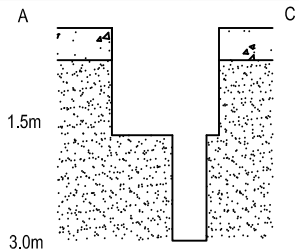
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N - Schmidt Hammer Test

PLAN



SECTION (A-C)



REMARKS

1. Shoring: YES
2. Water Seepage: NO
3. Maximum Depth: 3m (Sampling)
4. Average Depth: 1.5m
5. Small disturbed samples taken at 0.8m, 1.5m & 3.0m depth for contamination analysis

VINCI CONSTRUCTION GRANDS PROJETS

Project : SHATIN TO CENTRAL LINK HIN KENG TO DIAMOND HILL TUNNELS

Contract No. : 1103

Works Order No.:

Co-ordinates : E 846626.9 N 813993.6

Ground Level : 5.0 mPD

Logged by : P. PAK

Date logged : 26 APR 16

Checked by : KARL NG

Date checked : 26 APR 16

Excavation Dates: 21 APR 16 to 25 APR 16

Backfill Date: 26 APR 16

Trial Pit No. TP3A

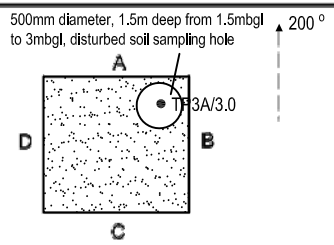
TRIAL PIT RECORD

Sample & Tests	Depth (m)	Sketch	Depth (m)	Legend (Face A)	Description	Grade
TP3A/0.5	0	Face A 1.5 m, Face B 1.5 m, Face C 1.5 m, Face D 1.5 m	0		Dense, moist, yellowish brown, medium to coarse SAND with some angular cobbles and fine to coarse gravel of rock fragment and concrete and some angular boulders of concrete. (FILL)	
	1.00				At 0.4m to 1.5m: Concrete blocks of maximum 1500mm long.	
TP3A/1.5		Concrete (1200mm) Concrete (1500mm) Concrete (600mm)	1.50		Base: Same as above	
	2.00				Bottom of trial pit at 1.5m depth (max 3.0m)	
TP3A/3.0	3.00		3.00			
	4.00					

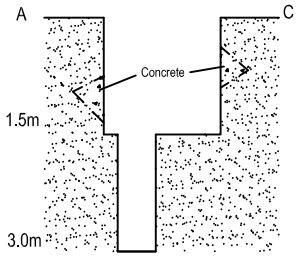
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N - Schmidt Hammer Test

PLAN



SECTION (A-C)



REMARKS

1. Shoring: YES
2. Water Seepage: NO
3. Maximum Depth: 3m (Sampling)
4. Average Depth: 1.5m
5. Small disturbed samples taken at 0.5m, 1.5m & 3.0m depth for contamination analysis

VINCI CONSTRUCTION GRANDS PROJETS

Project : SHATIN TO CENTRAL LINK HIN KENG TO DIAMOND HILL TUNNELS	Logged by : P. PAK	Checked by : KARL NG	Excavation Dates:	Trial Pit No.	
Contract No. : 1103	Works Order No.:	Date logged : 26 APR 16	Date checked : 26 APR 16	21 APR 16 to 25 APR 16	TP4A
Co-ordinates : E 846622.3 N 813985.9	Ground Level : 4.8 mPD		Backfill Date: 26 APR 16		

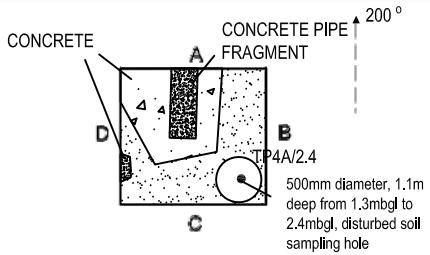
TRIAL PIT RECORD

Sample & Tests	Depth (m)	Sketch	Depth (m)	Legend (Face A)	Description	Grade
TP4A/0.5	0.00	Face A 1.5 m, Face B 1.5 m, Face C 1.5 m, Face D 1.5 m	0.00		Grey, CONCRETE (CONCRETE SLAB)	
					Dense, moist, yellowish brown, medium to coarse SAND with some angular cobbles and gravels of rock fragment and concrete. (FILL)	
			1.00		Base: Same as above with some concrete blocks of maximum 1100mm x 1100mm	
TP4A/1.5	1.00				Bottom of trial pit at 1.3m depth (max 2.4m)	
	2.00					
TP4A/2.4	3.00		3.00			
	4.00					

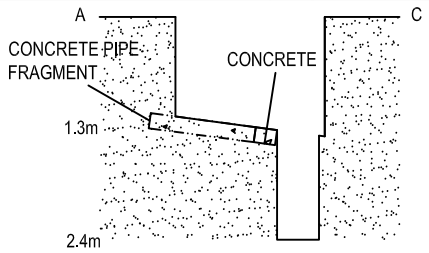
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N - Schmidt Hammer Test

PLAN



SECTION (A-C)



REMARKS

1. Shoring: YES
2. Water Seepage: NO
3. Maximum Depth: 2.4m
4. Average Depth: 1.1m
5. Small disturbed samples taken at 0.5m, 1.5m & 2.4m depth for contamination analysis

Appendix 4.1

Risk-Based Remediation Goals Criteria

Chemicals	RBRGs for Soil & Soil Saturation Limit		RBRGs for Groundwater & Solubility Limit	
	Industrial	Soil Saturation Limit (C_{sat})	Industrial	Solubility Limit
	(mg/kg)	(mg/kg)	(mg/L)	(mg/L)
VOCs				
Acetone	10000	***	10000	***
Benzene	9.21	336	54	1750
Bromodichloromethane	2.85	1030	26.2	6740
2-Butanone	10000	***	10000	***
Chloroform	1.54	1100	11.3	7920
Ethylbenzene	8240	138	10000	169
Methyl tert-Butyl Ether	70.1	2380	1810	***
Methylene Chloride	13.9	921	224	***
Styrene	10000	497	10000	310
Tetrachloroethene	0.777	97.1	2.95	200
Toluene	10000	235	10000	526
Trichloroethene	5.68	488	14.2	1100
Xylenes (Total)	1230	150	1570	175
SVOCs				
Acenaphthene	10000	60.2	10000	4.24
Acenaphthylene	10000	19.8	10000	3.93
Anthracene	10000	2.56	10000	0.0434
Benzo(a)anthracene	91.8	--	--	--
Benzo(a)pyrene	9.18	--	--	--
Benzo(b)fluoranthene	17.8	--	7.53	0.0015
Benzo(g,h,i)perylene	10000	--	--	--
Benzo(k)fluoranthene	918	--	--	--
Bis-(2-Ethylhexyl)phthalate	91.8	--		--
Chrysene	1140	--	812	0.0016
Dibenzo(a,h)anthracene	9.18	--	--	--
Fluoranthene	10000	--	10000	0.206
Fluorene	10000	54.7	10000	1.98
Hexachlorobenzene	0.582	--	0.695	6.2
Indeno(1,2,3-cd)pyrene	91.8	--	--	--
Naphthalene	453	125	862	31
Phenanthrene	10000	28	10000	1
Phenol	10000	7260	--	--
Pyrene	10000	--	10000	0.135
Metals				
Antimony	261	--	--	--
Arsenic	196	--	--	--
Barium	10000	--	--	--
Cadmium	653	--	--	--
Chromium III	10000	--	--	--
Chromium VI	1960	--	--	--
Cobalt	10000	--	--	--
Copper	10000	--	--	--
Lead	2290	--	--	--
Manganese	10000	--	--	--
Mercury	38.4	--	6.79	--
Molybdenum	3260	--	--	--
Nickel	10000	--	--	--
Tin	10000	--	--	--
Zinc	10000	--	--	--
Petroleum Carbon Ranges				
C6 - C8	10000	1000	1150	5.23
C9 - C16	10000	3000	9980	2.8
C17 - C35	10000	5000	178	2.8
*** indicated that the C_{sat} value exceeds the 'ceiling limit' (10,000 mg/kg) therefore the RBRG applies.				

Appendix 5.1

Soil Testing Results Summary

Shatin to Central Link - Tai Wai to Hung Hom Section
- Land Contamination Assessment of Magazine Site at TKO area 137
Summary of Laboratory Results

Sample Nature : Soil

Chemicals	Reporting Limit	RBRGs		ALS Lab ID	HK1616271-001	HK1616271-002	HK1616271-003	HK1616419-001	HK1616058-001	HK1616270-001	HK1616270-002	HK1615957-001	HK1616059-001	HK1616270-003	HK1615966-001	HK1616057-001	HK1616057-002
		Industrial	Soil Saturation Limit (C_{sat})	Sampling ID	TP1A 0.8M	TP1A 0.8M (DUPLICATE)	TP1A 1.5M	TP1A 3M	TP2 0.8M	TP2 1.5M	TP2 3M	TP3A 0.5M	TP3A 1.5M	TP3A 3M	TP4A 0.5M	TP4A 1.5M	TP4A 2.4M
	(mg/kg)	(mg/kg)	(mg/kg)	Sampling Date	25-Apr-16	25-Apr-16	25-Apr-16	26-Apr-16	22-Apr-16	25-Apr-16	25-Apr-16	21-Apr-16	22-Apr-16	25-Apr-16	21-Apr-16	22-Apr-16	22-Apr-16
VOCs																	
Acetone	50	10000	***		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Benzene	0.2	9.21	336		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromodichloromethane	0.1	2.85	1030		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Butanone	5	10000	***		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	0.04	1.54	1100		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	0.5	8240	138		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether	0.5	70.1	2380		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene Chloride	0.5	13.9	921		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	0.5	10000	497		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.04	0.777	97.1		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	0.5	10000	235		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.1	5.68	488		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylenes (Total)	2	1230	150		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SVOCs																	
Acenaphthene	0.500	10000	60.2		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	0.500	10000	19.8		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	0.500	10000	2.56		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	0.500	91.8	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	0.500	9.18	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	0.500	17.8	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	0.500	10000	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	0.500	918	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis-(2-Ethylhexyl)phthalate	5.00	91.8	--		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chrysene	0.500	1140	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenzo(a,h)anthracene	0.500	9.18	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	0.500	10000	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	0.500	10000	54.7		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	0.200	0.582	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	0.500	91.8	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	0.500	453	125		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	0.500	10000	28		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenol	0.500	10000	7260		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	0.500	10000	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Metals																	
Antimony	1	261	--		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic	1	196	--		4	3	3	13	2	12	10	4	5	4	24	5	5
Barium	1	10000	--		60	58	28	47	27	133	18	33	18	30	62	68	35
Cadmium	0.2	653	--		<0.2	<0.2	0.2	<0.2	<0.2	0.2	0.6	<0.2	0.3	<0.2	<0.2	0.3	<0.2
Chromium III	1	10000	--		6	4	3	3	6	6	2	7	1	5	3	6	6
Chromium VI	1	1960	--		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	1	10000	--		3	2	2	3	2	5	2	2	1	2	2	2	2
Copper	1	10000	--		9	5	6	4	9	8	5	7	3	9	4	10	8
Lead	1	2290	--		35	29	39	51	42	249	39	32	54	37	54	42	30
Manganese	1	10000	--		453	482	523	458	450	1800	573	353	1050	368	507	513	356
Mercury	0.05	38.4	--		<0.05	<0.05	<0.05	0.14	<0.05	0.07	<0.05	<0.05	<0.05	0.1	<0.05	0.08	<0.05
Molybdenum	1	3260	--		3	3	3	5	2	3	2	2	2	2	4	1	2
Nickel	1	10000	--		3	3	2	2	4	3	1	3	<1	3	2	3	3
Tin	1	10000	--		4	4	3	2	13	9	6	3	5	6	2	4	3
Zinc	1	10000	--		54	46	44	56	46	56	74	52	60	63	39	66	54
Petroleum Carbon Ranges																	
C6 - C8	5	10000	1000		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C9 - C16	200	10000	3000		<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
C17 - C35	500	10000	5000		<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500

*** indicated that the C_{sat} value exceeds the 'ceiling limit' (10,000 mg/kg) therefore the RBRG applies.

Appendix 5.2

Laboratory Testing Reports

Trial Pit - TP1A

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 14
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616271
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: keung-ngai.chan@arup.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 25-APR-2016
Order number	: ----			Issue Date	: 11-MAY-2016
C-O-C number	: H031682			No. of samples received	: 6
Site	: ----			No. of samples analysed	: 6

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	Manager - Organics	Organics
Lin Wai Yu, Iris	Senior Chemist - Inorganics	Inorganics
Wong Wing, Kenneth	Manager - Metals	Inorganics

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 10-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616271

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
Water sample(s) analysed and reported on an as received basis.
Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.
Water sample(s) were filtered prior to dissolved metal analysis.
Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	TP1A 0.8M	TP1A 0.8M (DUPLICATE)	TP1A 1.5M		
				Client sampling date / time	[25-APR-2016]	[25-APR-2016]	[25-APR-2016]		
					HK1616271-001	HK1616271-002	HK1616271-003		
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	----	0.1	%		**14.7**	**14.2**	**11.2**		
EG: Metals and Major Cations									
EG020: Antimony	7440-36-0	1	mg/kg		<1	<1	<1		
EG020: Arsenic	7440-38-2	1	mg/kg		**4**	**3**	**3**		
EG020: Barium	7440-39-3	1	mg/kg		**60**	**58**	**28**		
EG020: Cadmium	7440-43-9	0.2	mg/kg		<0.2	<0.2	**0.2**		
EG020: Cobalt	7440-48-4	1	mg/kg		**3**	**2**	**2**		
EG020: Copper	7440-50-8	1	mg/kg		**9**	**5**	**6**		
EG020: Lead	7439-92-1	1	mg/kg		**35**	**29**	**39**		
EG020: Manganese	7439-96-5	1	mg/kg		**453**	**482**	**523**		
EG020: Mercury	7439-97-6	0.05	mg/kg		<0.05	<0.05	<0.05		
EG020: Molybdenum	7439-98-7	1	mg/kg		**3**	**3**	**3**		
EG020: Nickel	7440-02-0	1	mg/kg		**3**	**3**	**2**		
EG020: Tin	7440-31-5	1	mg/kg		**4**	**4**	**3**		
EG020: Zinc	7440-66-6	1	mg/kg		**54**	**46**	**44**		
EG049: Trivalent Chromium	16065-83-1	1	mg/kg		**6**	**4**	**3**		
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg		<1	<1	<1		
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.500	mg/kg		<0.500	<0.500	<0.500		
Acenaphthylene	208-96-8	0.500	mg/kg		<0.500	<0.500	<0.500		
Acenaphthene	83-32-9	0.500	mg/kg		<0.500	<0.500	<0.500		
Fluorene	86-73-7	0.500	mg/kg		<0.500	<0.500	<0.500		
Phenanthrene	85-01-8	0.500	mg/kg		<0.500	<0.500	<0.500		
Anthracene	120-12-7	0.500	mg/kg		<0.500	<0.500	<0.500		
Fluoranthene	206-44-0	0.500	mg/kg		<0.500	<0.500	<0.500		
Pyrene	129-00-0	0.500	mg/kg		<0.500	<0.500	<0.500		
Benz(a)anthracene	56-55-3	0.500	mg/kg		<0.500	<0.500	<0.500		
Chrysene	218-01-9	0.500	mg/kg		<0.500	<0.500	<0.500		
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg		<0.500	<0.500	<0.500		
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg		<0.500	<0.500	<0.500		
Benzo(a)pyrene	50-32-8	0.500	mg/kg		<0.500	<0.500	<0.500		
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg		<0.500	<0.500	<0.500		
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg		<0.500	<0.500	<0.500		
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg		<0.500	<0.500	<0.500		
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate									
Phenol	108-95-2	0.50	mg/kg		<0.50	<0.50	<0.50		
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg		<0.200	<0.200	<0.200		

Sub-Matrix: SOIL				Client sample ID	TP1A 0.8M	TP1A 0.8M (DUPLICATE)	TP1A 1.5M		
				Client sampling date / time	[25-APR-2016]	[25-APR-2016]	[25-APR-2016]		
Compound	CAS Number	LOR	Unit		HK1616271-001	HK1616271-002	HK1616271-003		
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate - Continued									
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg		<5.00	<5.00	<5.00		
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	5	mg/kg		<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg		<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg		<500	<500	<500		
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg		<1.0	<1.0	<1.0		
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5		
Xylenes (Total)	----	2.0	mg/kg		<2.0	<2.0	<2.0		
EP-074_SR-B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg		<50	<50	<50		
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5		
EP-074_SR-E: Halogenated Aliphatics									
Methylene chloride	75-09-2	0.5	mg/kg		<0.5	<0.5	<0.5		
Trichloroethene	79-01-6	0.1	mg/kg		<0.1	<0.1	<0.1		
Tetrachloroethene	127-18-4	0.04	mg/kg		<0.04	<0.04	<0.04		
EP-074_SR-G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.04	mg/kg		<0.04	<0.04	<0.04		
Bromodichloromethane	75-27-4	0.1	mg/kg		<0.1	<0.1	<0.1		
EP-074_SR-I: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg		<0.5	<0.5	<0.5		
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**107**	**105**	**105**		
4-Terphenyl-d14	1718-51-0	0.1	%		**112**	**114**	**119**		
EP-080_SRS: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%		**99.0**	**96.4**	**98.2**		
Toluene-D8	2037-26-5	0.1	%		**108**	**106**	**107**		
4-Bromofluorobenzene	460-00-4	0.1	%		**100**	**99.4**	**101**		
EP-074_SR-S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%		**99.0**	**96.4**	**98.2**		
Toluene-D8	2037-26-5	0.1	%		**108**	**106**	**107**		
4-Bromofluorobenzene	460-00-4	0.1	%		**100**	**99.4**	**101**		

Sub-Matrix: WATER				Client sample ID	EQUIPMENT BLANK	FIELD BLANK	TRIP BLANK		
				Client sampling date / time	[25-APR-2016]	[25-APR-2016]	[25-APR-2016]		
Compound	CAS Number	LOR	Unit		HK1616271-004	HK1616271-005	HK1616271-006		
EG: Metals and Major Cations - Filtered									
EG020: Antimony	7440-36-0	1	µg/L		<1	<1	----		
EG020: Arsenic	7440-38-2	10	µg/L		<10	<10	----		
EG020: Barium	7440-39-3	1	µg/L		<1	<1	----		
EG020: Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	----		
EG020: Cobalt	7440-48-4	1	µg/L		<1	<1	----		
EG020: Copper	7440-50-8	1	µg/L		<1	<1	----		
EG020: Lead	7439-92-1	1	µg/L		<1	<1	----		
EG020: Manganese	7439-96-5	1	µg/L		<1	<1	----		
EG020: Mercury	7439-97-6	0.1	µg/L		<0.1	<0.1	----		
EG020: Molybdenum	7439-98-7	1	µg/L		<1	<1	----		
EG020: Nickel	7440-02-0	1	µg/L		<1	<1	----		
EG020: Tin	7440-31-5	10	µg/L		<10	<10	----		
EG020: Zinc	7440-66-6	10	µg/L		**34**	**24**	----		
EG049: Trivalent Chromium	16065-83-1	20	µg/L		<20	<20	----		
EG050: Hexavalent Chromium	18540-29-9	20	µg/L		<20	<20	----		
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	2.0	µg/L		<2.0	<2.0	----		
Acenaphthylene	208-96-8	2.0	µg/L		<2.0	<2.0	----		
Acenaphthene	83-32-9	2.0	µg/L		<2.0	<2.0	----		
Fluorene	86-73-7	2.0	µg/L		<2.0	<2.0	----		
Phenanthrene	85-01-8	2.0	µg/L		<2.0	<2.0	----		
Anthracene	120-12-7	2.0	µg/L		<2.0	<2.0	----		
Fluoranthene	206-44-0	2.0	µg/L		<2.0	<2.0	----		
Pyrene	129-00-0	2.0	µg/L		<2.0	<2.0	----		
Benz(a)anthracene	56-55-3	2.0	µg/L		<2.0	<2.0	----		
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----		
Benzo(b)fluoranthene	205-99-2	1.0	µg/L		<1.0	<1.0	----		
Benzo(k)fluoranthene	207-08-9	2.0	µg/L		<2.0	<2.0	----		
Benzo(a)pyrene	50-32-8	2.0	µg/L		<2.0	<2.0	----		
Indeno(1.2.3.cd)pyrene	193-39-5	2.0	µg/L		<2.0	<2.0	----		
Dibenz(a.h)anthracene	53-70-3	2.0	µg/L		<2.0	<2.0	----		
Benzo(g.h.i)perylene	191-24-2	2.0	µg/L		<2.0	<2.0	----		
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate									
Phenol	108-95-2	2.0	µg/L		<2.0	<2.0	----		
Hexachlorobenzene (HCB)	118-74-1	4.0	µg/L		<4.0	<4.0	----		
Bis(2-ethylhexyl)phthalate	117-81-7	2.0	µg/L		<2.0	<2.0	----		
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20	<20	<20		
C9 - C16 Fraction	----	500	µg/L		<500	<500	----		
C17 - C35 Fraction	----	500	µg/L		<500	<500	----		

Sub-Matrix: WATER				Client sample ID	EQUIPMENT BLANK	FIELD BLANK	TRIP BLANK		
				Client sampling date / time	[25-APR-2016]	[25-APR-2016]	[25-APR-2016]		
Compound	CAS Number	LOR	Unit		HK1616271-004	HK1616271-005	HK1616271-006		
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	5.0	µg/L		<5.0	<5.0	<5.0		
Toluene	108-88-3	5.0	µg/L		<5.0	<5.0	<5.0		
Ethylbenzene	100-41-4	5.0	µg/L		<5.0	<5.0	<5.0		
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10	<10	<10		
Styrene	100-42-5	5.0	µg/L		<5.0	<5.0	<5.0		
ortho-Xylene	95-47-6	5.0	µg/L		<5.0	<5.0	<5.0		
Xylenes (Total)	----	20	µg/L		<20	<20	<20		
EP-074_SR-B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	500	µg/L		<500	<500	<500		
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	<50		
EP-074_SR-E: Halogenated Aliphatics									
Methylene chloride	75-09-2	50	µg/L		<50	<50	<50		
Trichloroethene	79-01-6	5.0	µg/L		<5.0	<5.0	<5.0		
Tetrachloroethene	127-18-4	5.0	µg/L		<5.0	<5.0	<5.0		
EP-074_SR-G: Trihalomethanes (THM)									
Chloroform	67-66-3	5.0	µg/L		<5.0	<5.0	<5.0		
Bromodichloromethane	75-27-4	5.0	µg/L		<5.0	<5.0	<5.0		
EP-074_SR-I: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	µg/L		<5.0	<5.0	<5.0		
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**55.3**	**104**	----		
4-Terphenyl-d14	1718-51-0	0.1	%		**115**	**122**	----		
EP-080_SRS: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%		**95.4**	**96.0**	**97.0**		
Toluene-D8	2037-26-5	0.1	%		**108**	**110**	**109**		
4-Bromofluorobenzene	460-00-4	0.1	%		**102**	**102**	**102**		
EP-074_SR-S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%		**95.4**	**96.0**	**97.0**		
Toluene-D8	2037-26-5	0.1	%		**108**	**110**	**109**		
4-Bromofluorobenzene	460-00-4	0.1	%		**102**	**102**	**102**		

Laboratory Duplicate (DUP) Report

Matrix: SOIL

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4191126)								
HK1616174-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	11.2	11.4	0.9
HK1616271-002	TP1A 0.8M (DUPLICATE)	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	14.2	15.2	6.9
EG: Metals and Major Cations (QC Lot: 4190095)								
HK1616271-002	TP1A 0.8M (DUPLICATE)	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 4190095) - Continued								
HK1616271-002	TP1A 0.8M (DUPLICATE)	**EG020: Cadmium**	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	3	2	0.0
		EG020: Barium	7440-39-3	1	mg/kg	58	51	13.3
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	5	5	0.0
		EG020: Lead	7439-92-1	1	mg/kg	29	25	14.9
		EG020: Manganese	7439-96-5	1	mg/kg	482	421	13.7
		EG020: Molybdenum	7439-98-7	1	mg/kg	3	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	2	0.0
		EG020: Tin	7440-31-5	1	mg/kg	4	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	46	46	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190190)								
HK1616271-001	TP1A 0.8M	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192) - Continued								
HK1616271-001	TP1A 0.8M	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)								
HK1616271-001	TP1A 0.8M	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)								
HK1616271-001	TP1A 0.8M	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)								
HK1616271-001	TP1A 0.8M	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)								
HK1616271-001	TP1A 0.8M	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)								
HK1616271-001	TP1A 0.8M	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations - Filtered (QC Lot: 4190392)								
HK1616271-005	FIELD BLANK	**EG020: Mercury**	7439-97-6	0.1	µg/L	<0.1	<0.1	0.0
		EG020: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	µg/L	<1	<1	0.0
		EG020: Barium	7440-39-3	1	µg/L	<1	<1	0.0
		EG020: Cobalt	7440-48-4	1	µg/L	<1	<1	0.0
		EG020: Copper	7440-50-8	1	µg/L	<1	<1	0.0
		EG020: Lead	7439-92-1	1	µg/L	<1	<1	0.0
		EG020: Manganese	7439-96-5	1	µg/L	<1	<1	0.0
		EG020: Molybdenum	7439-98-7	1	µg/L	<1	<1	0.0
		EG020: Nickel	7440-02-0	1	µg/L	<1	<1	0.0
		EG020: Arsenic	7440-38-2	10	µg/L	<10	<10	0.0
		EG020: Tin	7440-31-5	10	µg/L	<10	<10	0.0
		EG020: Zinc	7440-66-6	10	µg/L	24	22	5.2
EG: Metals and Major Cations - Filtered (QC Lot: 4190393)								
HK1616271-005	FIELD BLANK	**EG050: Hexavalent Chromium**	18540-29-9	20	µg/L	<20	<20	0.0

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4187986)								
HK1615590-007	Anonymous	**Naphthalene**	91-20-3	0.2	µg/L	<0.2	<0.2	0.0
		Acenaphthylene	208-96-8	0.2	µg/L	<0.2	<0.2	0.0
		Acenaphthene	83-32-9	0.2	µg/L	<0.2	<0.2	0.0
		Fluorene	86-73-7	0.2	µg/L	<0.2	<0.2	0.0
		Phenanthrene	85-01-8	0.2	µg/L	<0.2	<0.2	0.0
		Anthracene	120-12-7	0.2	µg/L	<0.2	<0.2	0.0
		Fluoranthene	206-44-0	0.2	µg/L	<0.2	<0.2	0.0
		Pyrene	129-00-0	0.2	µg/L	<0.2	<0.2	0.0
		Benz(a)anthracene	56-55-3	0.2	µg/L	<0.2	<0.2	0.0
		Chrysene	218-01-9	0.2	µg/L	<0.2	<0.2	0.0
		Benzo(b)fluoranthene	205-99-2	0.2	µg/L	<0.2	<0.2	0.0
		Benzo(k)fluoranthene	207-08-9	0.2	µg/L	<0.2	<0.2	0.0
		Benzo(a)pyrene	50-32-8	0.2	µg/L	<0.2	<0.2	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	<0.2	<0.2	0.0
		Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	<0.2	<0.2	0.0
		Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	<0.2	<0.2	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4187986)								
HK1615590-007	Anonymous	**Bis(2-ethylhexyl)phthalate**	117-81-7	10.0	µg/L	<10.0	<10.0	0.0
		Hexachlorobenzene (HCB)	118-74-1	4.0	µg/L	<4.0	<4.0	0.0
		Phenol	108-95-2	5.0	µg/L	<5.0	<5.0	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190095)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	100	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	86.7	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	92.6	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	88.8	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	86.4	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	88.4	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	88.3	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	97.6	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	91.0	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	87.0	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	87.6	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	102	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	90.5	----	80	122	----	----
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190190)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	111	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	92.2	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	92.6	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	93.9	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	94.9	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	93.7	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	95.3	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	93.2	----	75	122	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	88.4	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	93.0	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	104	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	97.1	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	90.9	----	61	147	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report: Spike Concentration	Spike Recovery (%) LCS	Spike Recovery (%) DCS	Recovery Limits (%) Low	Recovery Limits (%) High	RPD (%) Value	RPD (%) Control Limit
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191) - Continued											
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	86.8	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	87.2	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	94.0	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	87.5	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	86.4	----	56	126	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report: Spike Concentration	Spike Recovery (%) LCS	Spike Recovery (%) DCS	Recovery Limits (%) Low	Recovery Limits (%) High	RPD (%) Value	RPD (%) Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 4190392)											
EG020: Antimony	7440-36-0	1	µg/L	<1	100 µg/L	89.6	----	77	109	----	----
EG020: Arsenic	7440-38-2	10	µg/L	<10	100 µg/L	88.2	----	74	120	----	----
EG020: Barium	7440-39-3	1	µg/L	<1	100 µg/L	96.4	----	78	112	----	----
EG020: Cadmium	7440-43-9	0.2	µg/L	<0.2	100 µg/L	90.6	----	78	112	----	----
EG020: Cobalt	7440-48-4	1	µg/L	<1	100 µg/L	94.4	----	75	115	----	----
EG020: Copper	7440-50-8	1	µg/L	<1	100 µg/L	93.5	----	75	115	----	----
EG020: Lead	7439-92-1	1	µg/L	<1	100 µg/L	91.8	----	80	110	----	----
EG020: Manganese	7439-96-5	1	µg/L	<1	100 µg/L	94.2	----	75	115	----	----
EG020: Mercury	7439-97-6	0.5	µg/L	<0.5	2 µg/L	102	----	76	118	----	----
EG020: Molybdenum	7439-98-7	1	µg/L	<1	100 µg/L	91.8	----	78	112	----	----
EG020: Nickel	7440-02-0	1	µg/L	<1	100 µg/L	90.9	----	73	119	----	----
EG020: Tin	7440-31-5	10	µg/L	<10	100 µg/L	91.3	----	74	116	----	----
EG020: Zinc	7440-66-6	10	µg/L	<10	100 µg/L	86.6	----	73	121	----	----
EG: Metals and Major Cations - Filtered (QC Lot: 4190393)											
EG050: Hexavalent Chromium	18540-29-9	20	µg/L	<20	100 µg/L	91.2	----	80	106	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4187986)											
Naphthalene	91-20-3	0.2	µg/L	<0.2	0.5 µg/L	63.8	----	36	124	----	----
Acenaphthylene	208-96-8	0.2	µg/L	<0.2	0.5 µg/L	62.4	----	39	108	----	----
Acenaphthene	83-32-9	0.2	µg/L	<0.2	0.5 µg/L	62.1	----	33	120	----	----
Fluorene	86-73-7	0.2	µg/L	<0.2	0.5 µg/L	73.1	----	37	120	----	----
Phenanthrene	85-01-8	0.2	µg/L	<0.2	0.5 µg/L	73.2	----	45	117	----	----
Anthracene	120-12-7	0.2	µg/L	<0.2	0.5 µg/L	70.8	----	46	105	----	----
Fluoranthene	206-44-0	0.2	µg/L	<0.2	0.5 µg/L	98.0	----	64	121	----	----
Pyrene	129-00-0	0.2	µg/L	<0.2	0.5 µg/L	101	----	64	121	----	----
Benz(a)anthracene	56-55-3	0.2	µg/L	<0.2	0.5 µg/L	87.0	----	65	120	----	----
Chrysene	218-01-9	0.2	µg/L	<0.2	0.5 µg/L	96.0	----	61	135	----	----
Benzo(b)fluoranthene	205-99-2	0.2	µg/L	<0.2	0.5 µg/L	91.0	----	56	124	----	----
Benzo(k)fluoranthene	207-08-9	0.2	µg/L	<0.2	0.5 µg/L	102	----	58	129	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4187986) - Continued											
Benzo(a)pyrene	50-32-8	0.2	µg/L	<0.2	0.5 µg/L	93.6	----	42	114	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	<0.2	0.5 µg/L	75.6	----	43	113	----	----
Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	<0.2	0.5 µg/L	79.6	----	33	115	----	----
Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	<0.2	0.5 µg/L	72.6	----	36	124	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4187986)											
Phenol	108-95-2	5	µg/L	<5.0	0.5 µg/L	51.4	----	17	118	----	----
Hexachlorobenzene (HCB)	118-74-1	5	µg/L	<5.0	0.5 µg/L	67.4	----	33	123	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	10	µg/L	<10.0	0.5 µg/L	117	----	76	145	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4188020)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	83.6	----	73	122	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190187)											
C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.21 mg/L	83.8	----	42	99	----	----
C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.45 mg/L	90.1	----	53	134	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4191128)											
Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	93.2	----	67	130	----	----
Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	91.0	----	76	127	----	----
Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	87.5	----	84	120	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	100	----	80	128	----	----
Styrene	100-42-5	0.5	µg/L	<0.5	2 µg/L	100	----	76	120	----	----
ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	104	----	84	125	----	----
Xylenes (Total)	----	2	µg/L	<2	6 µg/L	102	----	86	123	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4191128)											
2-Propanone (Acetone)	67-64-1	5	µg/L	<5	20 µg/L	86.7	----	65	140	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	86.8	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4191128)											
Methylene chloride	75-09-2	5	µg/L	<5	2 µg/L	97.6	----	76	128	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	89.7	----	68	121	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	87.1	----	75	118	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4191128)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	92.5	----	66	134	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	102	----	71	125	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4191128)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	91.0	----	65	121	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190095)										
HK1616271-001	TP1A 0.8M	EG020: Antimony	7440-36-0	5 mg/kg	94.0	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	81.9	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	88.6	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	84.7	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	98.7	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	109	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	86.6	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	81.9	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	83.0	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190190)										
HK1616271-002	TP1A 0.8M (DUPLICATE)	C9 - C16 Fraction	----	31.5 mg/kg	97.0	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	94.4	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192)										
HK1616271-002	TP1A 0.8M (DUPLICATE)	C6 - C8 Fraction	----	4.5 mg/kg	98.3	----	50	130	----	----

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 4190392)										
HK1616271-004	EQUIPMENT BLANK	EG020: Antimony	7440-36-0	100 µg/L	88.2	----	75	125	----	----
		EG020: Arsenic	7440-38-2	100 µg/L	89.0	----	75	125	----	----
		EG020: Barium	7440-39-3	100 µg/L	89.7	----	75	125	----	----
		EG020: Cadmium	7440-43-9	100 µg/L	86.6	----	75	125	----	----
		EG020: Cobalt	7440-48-4	100 µg/L	90.2	----	75	125	----	----
		EG020: Copper	7440-50-8	100 µg/L	90.0	----	75	125	----	----
		EG020: Lead	7439-92-1	100 µg/L	90.3	----	75	125	----	----
		EG020: Manganese	7439-96-5	100 µg/L	89.3	----	75	125	----	----

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPD (%): Value	RPD (%): Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 4190392) - Continued										
HK1616271-004	EQUIPMENT BLANK	**EG020: Mercury**	7439-97-6	2 µg/L	87.5	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	100 µg/L	92.2	----	75	125	----	----
		EG020: Nickel	7440-02-0	100 µg/L	88.4	----	75	125	----	----
		EG020: Tin	7440-31-5	100 µg/L	91.5	----	75	125	----	----
		EG020: Zinc	7440-66-6	100 µg/L	78.0	----	75	125	----	----
EG: Metals and Major Cations - Filtered (QC Lot: 4190393)										
HK1616271-004	EQUIPMENT BLANK	**EG050: Hexavalent Chromium**	18540-29-9	100 µg/L	90.6	----	75	125	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616419
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 26-APR-2016
Order number	: ----			Issue Date	: 10-MAY-2016
C-O-C number	: H031685			No. of samples received	: 2
Site	: ----			No. of samples analysed	: 2

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	Manager - Organics	Organics
Wong Wing, Kenneth	Manager - Metals	Inorganics

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 04-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616419

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
Water sample(s) analysed and reported on an as received basis.
Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.
Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP1A 3.0M Client sampling date / time: [26-APR-2016] HK1616419-001
EA/ED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**13.9**
EG: Metals and Major Cations				
EG020: Antimony	7440-36-0	1	mg/kg	<1
EG020: Arsenic	7440-38-2	1	mg/kg	**13**
EG020: Barium	7440-39-3	1	mg/kg	**47**
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2
EG020: Cobalt	7440-48-4	1	mg/kg	**3**
EG020: Copper	7440-50-8	1	mg/kg	**4**
EG020: Lead	7439-92-1	1	mg/kg	**51**
EG020: Manganese	7439-96-5	1	mg/kg	**458**
EG020: Mercury	7439-97-6	0.05	mg/kg	**0.14**
EG020: Molybdenum	7439-98-7	1	mg/kg	**5**
EG020: Nickel	7440-02-0	1	mg/kg	**2**
EG020: Tin	7440-31-5	1	mg/kg	**2**
EG020: Zinc	7440-66-6	1	mg/kg	**56**
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**3**
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.500	mg/kg	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate				
Phenol	108-95-2	0.50	mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00

Sub-Matrix: SOIL			Client sample ID	TP1A 3.0M				
			Client sampling date / time	[26-APR-2016]				
Compound	CAS Number	LOR	Unit	HK1616419-001				
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
Styrene	100-42-5	0.5	mg/kg	<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
Xylenes (Total)	----	2.0	mg/kg	<2.0				
EP-074_SR-B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50				
2-Butanone (MEK)	78-93-3	5	mg/kg	<5				
EP-074_SR-E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.5	mg/kg	<0.5				
Trichloroethene	79-01-6	0.1	mg/kg	<0.1				
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04				
EP-074_SR-G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04				
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1				
EP-074_SR-I: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5				
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**109**				
4-Terphenyl-d14	1718-51-0	0.1	%	**117**				
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	**97.7**				
Toluene-D8	2037-26-5	0.1	%	**105**				
4-Bromofluorobenzene	460-00-4	0.1	%	**101**				
EP-074_SR-S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	**97.7**				
Toluene-D8	2037-26-5	0.1	%	**105**				
4-Bromofluorobenzene	460-00-4	0.1	%	**101**				

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: TRIP BLANK Client sampling date / time: [26-APR-2016] HK1616419-002
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)				
C6 - C8 Fraction	----	20	µg/L	<20
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)				
Benzene	71-43-2	5.0	µg/L	<5.0
Toluene	108-88-3	5.0	µg/L	<5.0
Ethylbenzene	100-41-4	5.0	µg/L	<5.0
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10
Styrene	100-42-5	5.0	µg/L	<5.0
ortho-Xylene	95-47-6	5.0	µg/L	<5.0
Xylenes (Total)	----	20	µg/L	<20
EP-074_SR-B: Oxygenated Compounds				
2-Propanone (Acetone)	67-64-1	500	µg/L	<500
2-Butanone (MEK)	78-93-3	50	µg/L	<50
EP-074_SR-E: Halogenated Aliphatics				
Methylene chloride	75-09-2	50	µg/L	<50
Trichloroethene	79-01-6	5.0	µg/L	<5.0
Tetrachloroethene	127-18-4	5.0	µg/L	<5.0
EP-074_SR-G: Trihalomethanes (THM)				
Chloroform	67-66-3	5.0	µg/L	<5.0
Bromodichloromethane	75-27-4	5.0	µg/L	<5.0
EP-074_SR-I: Methyl-tert-butyl Ether				
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	µg/L	<5.0
EP-080_SRS: TPH(Volatile)/BTEX Surrogate				
Dibromofluoromethane	1868-53-7	0.1	%	**95.4**
Toluene-D8	2037-26-5	0.1	%	**110**
4-Bromofluorobenzene	460-00-4	0.1	%	**102**
EP-074_SR-S: VOC Surrogates				
Dibromofluoromethane	1868-53-7	0.1	%	**95.4**
Toluene-D8	2037-26-5	0.1	%	**110**
4-Bromofluorobenzene	460-00-4	0.1	%	**102**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4191126)								
HK1616174-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	11.2	11.4	0.9
HK1616271-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	14.2	15.2	6.9
EG: Metals and Major Cations (QC Lot: 4190095)								
HK1616271-002	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 4190095) - Continued								
HK1616271-002	Anonymous	**EG020: Antimony**	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	3	2	0.0
		EG020: Barium	7440-39-3	1	mg/kg	58	51	13.3
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	5	5	0.0
		EG020: Lead	7439-92-1	1	mg/kg	29	25	14.9
		EG020: Manganese	7439-96-5	1	mg/kg	482	421	13.7
		EG020: Molybdenum	7439-98-7	1	mg/kg	3	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	2	0.0
		EG020: Tin	7440-31-5	1	mg/kg	4	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	46	46	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190190)								
HK1616271-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192)								
HK1616271-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)								
HK1616271-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190095)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	100	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	86.7	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	92.6	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	88.8	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	86.4	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	88.4	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	88.3	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	97.6	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	91.0	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	87.0	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	87.6	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	102	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	90.5	----	80	122	----	----
EG: Metals and Major Cations (QC Lot: 4191160)											

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160) - Continued											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190190)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	111	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	92.2	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	92.6	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	93.9	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	94.9	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	93.7	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	95.3	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	93.2	----	75	122	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	88.4	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	93.0	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	104	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	97.1	----	67	118	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	90.9	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	86.8	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	87.2	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	94.0	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	87.5	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	86.4	----	56	126	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4191129)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	88.2	----	63	127	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4191128)											
Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	93.2	----	67	130	----	----
Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	91.0	----	76	127	----	----
Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	87.5	----	84	120	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	100	----	80	128	----	----
Styrene	100-42-5	0.5	µg/L	<0.5	2 µg/L	100	----	76	120	----	----
ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	104	----	84	125	----	----
Xylenes (Total)	----	2	µg/L	<2	6 µg/L	102	----	86	123	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4191128)											
2-Propanone (Acetone)	67-64-1	5	µg/L	<5	20 µg/L	86.7	----	65	140	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	86.8	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4191128)											
Methylene chloride	75-09-2	5	µg/L	<5	2 µg/L	97.6	----	76	128	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	89.7	----	68	121	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	87.1	----	75	118	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4191128)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	92.5	----	66	134	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	102	----	71	125	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4191128)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	91.0	----	65	121	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190095)										
HK1616271-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	94.0	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	81.9	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	88.6	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	84.7	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	98.7	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	109	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	86.6	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	81.9	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	83.0	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190190)										
HK1616271-002	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	97.0	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	94.4	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4190192)										
HK1616271-002	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	98.3	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%)* *Low*	*High*
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: **WATER**

Compound	*CAS Number*	*Recovery Limits (%)* *Low*	*High*
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115

Trial Pit - TP2

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 9
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616058
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 22-APR-2016
Order number	: ----			Issue Date	: 09-MAY-2016
C-O-C number	: H031681			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 06-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616058

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	Manager - Organics	Organics
Wong Wing, Kenneth	Manager - Metals	Inorganics

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP2 0.8M Client sampling date / time: [22-APR-2016] HK1616058-001
EA/ED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**14.8**
EG: Metals and Major Cations				
EG020: Antimony	7440-36-0	1	mg/kg	<1
EG020: Arsenic	7440-38-2	1	mg/kg	**2**
EG020: Barium	7440-39-3	1	mg/kg	**27**
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2
EG020: Cobalt	7440-48-4	1	mg/kg	**2**
EG020: Copper	7440-50-8	1	mg/kg	**9**
EG020: Lead	7439-92-1	1	mg/kg	**42**
EG020: Manganese	7439-96-5	1	mg/kg	**450**
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05
EG020: Molybdenum	7439-98-7	1	mg/kg	**2**
EG020: Nickel	7440-02-0	1	mg/kg	**4**
EG020: Tin	7440-31-5	1	mg/kg	**13**
EG020: Zinc	7440-66-6	1	mg/kg	**46**
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**6**
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.500	mg/kg	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate				
Phenol	108-95-2	0.50	mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: TP2 0.8M Client sampling date / time: [22-APR-2016] HK1616058-001
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)				
C6 - C8 Fraction	----	5	mg/kg	<5
C9 - C16 Fraction	----	200	mg/kg	<200
C17 - C35 Fraction	----	500	mg/kg	<500
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)				
Benzene	71-43-2	0.2	mg/kg	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0
Styrene	100-42-5	0.5	mg/kg	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5
Xylenes (Total)	----	2.0	mg/kg	<2.0
EP-074_SR-B: Oxygenated Compounds				
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5
EP-074_SR-E: Halogenated Aliphatics				
Methylene chloride	75-09-2	0.5	mg/kg	<0.5
Trichloroethene	79-01-6	0.1	mg/kg	<0.1
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04
EP-074_SR-G: Trihalomethanes (THM)				
Chloroform	67-66-3	0.04	mg/kg	<0.04
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1
EP-074_SR-I: Methyl-tert-butyl Ether				
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates				
2-Fluorobiphenyl	321-60-8	0.1	%	**95.5**
4-Terphenyl-d14	1718-51-0	0.1	%	**103**
EP-080_SRS: TPH(Volatile)/BTEX Surrogate				
Dibromofluoromethane	1868-53-7	0.1	%	**97.0**
Toluene-D8	2037-26-5	0.1	%	**108**
4-Bromofluorobenzene	460-00-4	0.1	%	**101**
EP-074_SR-S: VOC Surrogates				
Dibromofluoromethane	1868-53-7	0.1	%	**97.0**
Toluene-D8	2037-26-5	0.1	%	**108**
4-Bromofluorobenzene	460-00-4	0.1	%	**101**

Laboratory Duplicate (DUP) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190160)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190160) - Continued								
HK1616057-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	13.1	13.1	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EG: Metals and Major Cations (QC Lot: 4195417)								
HK1616057-002	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	5	5	0.0
		EG020: Barium	7440-39-3	1	mg/kg	35	36	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	8	7	0.0
		EG020: Lead	7439-92-1	1	mg/kg	30	28	5.6
		EG020: Manganese	7439-96-5	1	mg/kg	356	374	5.1
		EG020: Molybdenum	7439-98-7	1	mg/kg	2	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
		EG020: Tin	7440-31-5	1	mg/kg	3	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	54	56	4.2
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176) - Continued								
HK1615791-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)								
HK1615791-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EG: Metals and Major Cations (QC Lot: 4195417)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	98.6	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	94.6	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	91.7	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	93.1	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	83.5	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	85.9	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.5	----	81	109	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4195417) - Continued											
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	98.5	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	103	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	90.1	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	86.0	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	91.9	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	88.5	----	80	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	82.2	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	84.1	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	85.1	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	101	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	75	122	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	96.8	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	86.9	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	99.7	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	88.5	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	85.2	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	85.4	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	86.2	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	84.0	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.0	----	56	126	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4195417)										
HK1616057-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	91.6	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	86.7	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	97.5	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	82.0	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	101	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	113	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	93.8	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	80.0	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	86.7	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%) Low*	*High*
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 9
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616270
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 25-APR-2016
Order number	: ----			Issue Date	: 10-MAY-2016
C-O-C number	: H031683			No. of samples received	: 3
Site	: ----			No. of samples analysed	: 3

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 04-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616270

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	**Manager - Organics**	**Organics**
Wong Wing, Kenneth	**Manager - Metals**	**Inorganics**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP2 1.5M Client sampling date / time: [25-APR-2016] HK1616270-001	TP2 3M [25-APR-2016] HK1616270-002	TP3A 3M [25-APR-2016] HK1616270-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**15.3**	**11.1**	**19.6**		
EG: Metals and Major Cations								
EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	<1		
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	**10**	**4**		
EG020: Barium	7440-39-3	1	mg/kg	**133**	**18**	**30**		
EG020: Cadmium	7440-43-9	0.2	mg/kg	**0.2**	**0.6**	<0.2		
EG020: Cobalt	7440-48-4	1	mg/kg	**5**	**2**	**2**		
EG020: Copper	7440-50-8	1	mg/kg	**8**	**5**	**9**		
EG020: Lead	7439-92-1	1	mg/kg	**249**	**39**	**37**		
EG020: Manganese	7439-96-5	1	mg/kg	**1800**	**573**	**368**		
EG020: Mercury	7439-97-6	0.05	mg/kg	**0.07**	<0.05	**0.10**		
EG020: Molybdenum	7439-98-7	1	mg/kg	**3**	**2**	**2**		
EG020: Nickel	7440-02-0	1	mg/kg	**3**	**1**	**3**		
EG020: Tin	7440-31-5	1	mg/kg	**9**	**6**	**6**		
EG020: Zinc	7440-66-6	1	mg/kg	**56**	**74**	**63**		
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**6**	**2**	**5**		
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1		
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500		
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500		
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500		
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500		
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500		
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500		
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50		
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200		
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00		

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: TP2 1.5M Client sampling date / time: [25-APR-2016] HK1616270-001	Client sample ID: TP2 3M Client sampling date / time: [25-APR-2016] HK1616270-002	Client sample ID: TP3A 3M Client sampling date / time: [25-APR-2016] HK1616270-003		
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	<2.0		
EP-074_SR-B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50		
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5		
EP-074_SR-E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	<0.5		
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	<0.1		
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	<0.04		
EP-074_SR-G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04	<0.04		
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	<0.1		
EP-074_SR-I: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**106**	**94.1**	**99.9**		
4-Terphenyl-d14	1718-51-0	0.1	%	**121**	**105**	**112**		
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	**98.2**	**98.8**	**100**		
Toluene-D8	2037-26-5	0.1	%	**107**	**108**	**106**		
4-Bromofluorobenzene	460-00-4	0.1	%	**100**	**101**	**102**		
EP-074_SR-S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	**98.2**	**98.8**	**100**		
Toluene-D8	2037-26-5	0.1	%	**107**	**108**	**106**		
4-Bromofluorobenzene	460-00-4	0.1	%	**100**	**101**	**102**		

Laboratory Duplicate (DUP) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4191126)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4191126) - Continued								
HK1616174-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	11.2	11.4	0.9
HK1616271-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	14.2	15.2	6.9
EG: Metals and Major Cations (QC Lot: 4190094)								
HK1616174-001	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	6	6	0.0
		EG020: Barium	7440-39-3	1	mg/kg	12	11	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	27	27	0.0
		EG020: Copper	7440-50-8	1	mg/kg	13	12	11.5
		EG020: Lead	7439-92-1	1	mg/kg	79	73	7.9
		EG020: Manganese	7439-96-5	1	mg/kg	74	77	3.8
		EG020: Molybdenum	7439-98-7	1	mg/kg	3	3	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	2	1	0.0
		EG020: Tin	7440-31-5	1	mg/kg	1	1	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	37	39	5.7
HK1616220-002	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	15.2	15.3	0.7
		EG020: Barium	7440-39-3	0.5	mg/kg	126	113	10.3
		EG020: Cobalt	7440-48-4	0.5	mg/kg	27.4	31.5	13.7
		EG020: Manganese	7439-96-5	0.5	mg/kg	2430	2850	16.0
		EG020: Tin	7440-31-5	0.5	mg/kg	3950	4320	9.0
		EG020: Antimony	7440-36-0	1	mg/kg	459	520	12.4
		EG020: Arsenic	7440-38-2	1	mg/kg	28	33	15.2
		EG020: Copper	7440-50-8	1	mg/kg	605	674	10.8
		EG020: Lead	7439-92-1	1	mg/kg	60	59	0.0
		EG020: Molybdenum	7439-98-7	1	mg/kg	32	31	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	120	117	3.1
		EG020: Zinc	7440-66-6	1	mg/kg	13000	14400	10.4
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472) - Continued								
HK1615957-001	Anonymous	**Pyrene**	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								
HK1615791-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)								
HK1616271-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190094)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	98.8	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	90.4	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	90.6	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	86.2	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	87.6	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	87.3	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	89.3	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	95.8	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	100	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	89.0	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	87.9	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	93.6	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	90.7	----	80	122	----	----
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176) - Continued											
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	93.9	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	94.9	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	93.7	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	95.3	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	93.2	----	75	122	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	88.4	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	93.0	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	104	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	97.1	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	90.9	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	86.8	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	87.2	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	94.0	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	87.5	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	86.4	----	56	126	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190094)										
HK1616056-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	88.6	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	90.6	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	93.5	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	86.6	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	92.4	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	82.4	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%)* *Low*	*High*
EP-080_SRS: TPH(Volatile)/BTEX Surrogate - Continued			
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Trial Pit - TP3A

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 9
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1615957
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: keung-ngai.chan@arup.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 21-APR-2016
Order number	: ----			Issue Date	: 09-MAY-2016
C-O-C number	: H029594			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 04-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1615957

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	**Manager - Organics**	**Organics**
Wong Wing, Kenneth	**Manager - Metals**	**Inorganics**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP3A 0.5M				
				Client sampling date / time: 21-APR-2016 14:50				
				HK1615957-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**10.6**				
EG: Metals and Major Cations								
EG020: Antimony	7440-36-0	1	mg/kg	<1				
EG020: Arsenic	7440-38-2	1	mg/kg	**4**				
EG020: Barium	7440-39-3	1	mg/kg	**33**				
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2				
EG020: Cobalt	7440-48-4	1	mg/kg	**2**				
EG020: Copper	7440-50-8	1	mg/kg	**7**				
EG020: Lead	7439-92-1	1	mg/kg	**32**				
EG020: Manganese	7439-96-5	1	mg/kg	**353**				
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05				
EG020: Molybdenum	7439-98-7	1	mg/kg	**2**				
EG020: Nickel	7440-02-0	1	mg/kg	**3**				
EG020: Tin	7440-31-5	1	mg/kg	**3**				
EG020: Zinc	7440-66-6	1	mg/kg	**52**				
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**7**				
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1				
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg	<0.500				
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500				
Acenaphthene	83-32-9	0.500	mg/kg	<0.500				
Fluorene	86-73-7	0.500	mg/kg	<0.500				
Phenanthrene	85-01-8	0.500	mg/kg	<0.500				
Anthracene	120-12-7	0.500	mg/kg	<0.500				
Fluoranthene	206-44-0	0.500	mg/kg	<0.500				
Pyrene	129-00-0	0.500	mg/kg	<0.500				
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500				
Chrysene	218-01-9	0.500	mg/kg	<0.500				
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500				
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500				
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500				
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500				
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500				
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500				
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg	<0.50				
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200				
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00				

Sub-Matrix: SOIL				Client sample ID	TP3A 0.5M				
				Client sampling date / time	21-APR-2016 14:50				
Compound	CAS Number	LOR	Unit		HK1615957-001				
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	5	mg/kg		<5				
C9 - C16 Fraction	----	200	mg/kg		<200				
C17 - C35 Fraction	----	500	mg/kg		<500				
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.2	mg/kg		<0.2				
Toluene	108-88-3	0.5	mg/kg		<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg		<1.0				
Styrene	100-42-5	0.5	mg/kg		<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5				
Xylenes (Total)	----	2.0	mg/kg		<2.0				
EP-074_SR-B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg		<50				
2-Butanone (MEK)	78-93-3	5	mg/kg		<5				
EP-074_SR-E: Halogenated Aliphatics									
Methylene chloride	75-09-2	0.5	mg/kg		<0.5				
Trichloroethene	79-01-6	0.1	mg/kg		<0.1				
Tetrachloroethene	127-18-4	0.04	mg/kg		<0.04				
EP-074_SR-G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.04	mg/kg		<0.04				
Bromodichloromethane	75-27-4	0.1	mg/kg		<0.1				
EP-074_SR-I: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg		<0.5				
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**118**				
4-Terphenyl-d14	1718-51-0	0.1	%		**127**				
EP-080_SRS: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%		**95.8**				
Toluene-D8	2037-26-5	0.1	%		**107**				
4-Bromofluorobenzene	460-00-4	0.1	%		**101**				
EP-074_SR-S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%		**95.8**				
Toluene-D8	2037-26-5	0.1	%		**107**				
4-Bromofluorobenzene	460-00-4	0.1	%		**101**				

Laboratory Duplicate (DUP) Report

Matrix: SOIL

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190158)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190158) - Continued								
HK1615708-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	12.2	12.2	0.0
HK1615794-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	18.7	18.8	0.0
EG: Metals and Major Cations (QC Lot: 4188647)								
HK1615957-001	TP3A 0.5M	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	4	4	0.0
		EG020: Barium	7440-39-3	1	mg/kg	33	34	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	7	7	0.0
		EG020: Lead	7439-92-1	1	mg/kg	32	32	0.0
		EG020: Manganese	7439-96-5	1	mg/kg	353	335	5.2
		EG020: Molybdenum	7439-98-7	1	mg/kg	2	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
		EG020: Tin	7440-31-5	1	mg/kg	3	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	52	53	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	TP3A 0.5M	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	TP3A 0.5M	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								
HK1615791-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)								
HK1615791-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)								
HK1615791-001	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)								
HK1615791-001	Anonymous	Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)								
HK1615791-001	Anonymous	Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)								
HK1615791-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4188647)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	96.0	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	89.4	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	92.4	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	87.3	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	90.0	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	88.2	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	88.6	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	94.1	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	97.4	----	75	113	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4188647) - Continued											
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	88.5	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	88.9	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	90.8	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	91.5	----	80	122	----	----
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	82.2	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	84.1	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	85.1	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	101	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	75	122	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	96.8	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	86.9	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	99.7	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	88.5	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	85.2	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	85.4	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	86.2	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	84.0	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.0	----	56	126	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4188647)										
HK1615788-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	88.0	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	103	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	93.6	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	92.2	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	80.6	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	83.0	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	86.9	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	88.9	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	87.0	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	TP3A 0.5M	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%) Low*	*High*
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616059
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: keung-ngai.chan@arup.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 22-APR-2016
Order number	: ----			Issue Date	: 09-MAY-2016
C-O-C number	: H029596			No. of samples received	: 2
Site	: ----			No. of samples analysed	: 2

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	Manager - Organics	Organics
Wong Wing, Kenneth	Manager - Metals	Inorganics

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 06-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616059

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
Water sample(s) analysed and reported on an as received basis.
Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.
Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP3A 1.5M Client sampling date / time: [22-APR-2016] HK1616059-001
EA/ED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**15.2**
EG: Metals and Major Cations				
EG020: Antimony	7440-36-0	1	mg/kg	<1
EG020: Arsenic	7440-38-2	1	mg/kg	**5**
EG020: Barium	7440-39-3	1	mg/kg	**18**
EG020: Cadmium	7440-43-9	0.2	mg/kg	**0.3**
EG020: Cobalt	7440-48-4	1	mg/kg	**1**
EG020: Copper	7440-50-8	1	mg/kg	**3**
EG020: Lead	7439-92-1	1	mg/kg	**54**
EG020: Manganese	7439-96-5	1	mg/kg	**1050**
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05
EG020: Molybdenum	7439-98-7	1	mg/kg	**2**
EG020: Nickel	7440-02-0	1	mg/kg	<1
EG020: Tin	7440-31-5	1	mg/kg	**5**
EG020: Zinc	7440-66-6	1	mg/kg	**60**
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**1**
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.500	mg/kg	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate				
Phenol	108-95-2	0.50	mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00

Sub-Matrix: SOIL			Client sample ID	TP3A 1.5M				
			Client sampling date / time	[22-APR-2016]				
Compound	CAS Number	LOR	Unit	HK1616059-001				
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
Styrene	100-42-5	0.5	mg/kg	<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
Xylenes (Total)	----	2.0	mg/kg	<2.0				
EP-074_SR-B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50				
2-Butanone (MEK)	78-93-3	5	mg/kg	<5				
EP-074_SR-E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.5	mg/kg	<0.5				
Trichloroethene	79-01-6	0.1	mg/kg	<0.1				
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04				
EP-074_SR-G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04				
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1				
EP-074_SR-I: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5				
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**99.3**				
4-Terphenyl-d14	1718-51-0	0.1	%	**102**				
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	**95.6**				
Toluene-D8	2037-26-5	0.1	%	**108**				
4-Bromofluorobenzene	460-00-4	0.1	%	**100**				
EP-074_SR-S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	**95.6**				
Toluene-D8	2037-26-5	0.1	%	**108**				
4-Bromofluorobenzene	460-00-4	0.1	%	**100**				

Sub-Matrix: WATER				Client sample ID	TRIP BLANK				
				Client sampling date / time	[22-APR-2016]				
Compound	CAS Number	LOR	Unit	HK1616059-002					
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L	<20					
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	5.0	µg/L	<5.0					
Toluene	108-88-3	5.0	µg/L	<5.0					
Ethylbenzene	100-41-4	5.0	µg/L	<5.0					
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10					
Styrene	100-42-5	5.0	µg/L	<5.0					
ortho-Xylene	95-47-6	5.0	µg/L	<5.0					
Xylenes (Total)	----	20	µg/L	<20					
EP-074_SR-B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	500	µg/L	<500					
2-Butanone (MEK)	78-93-3	50	µg/L	<50					
EP-074_SR-E: Halogenated Aliphatics									
Methylene chloride	75-09-2	50	µg/L	<50					
Trichloroethene	79-01-6	5.0	µg/L	<5.0					
Tetrachloroethene	127-18-4	5.0	µg/L	<5.0					
EP-074_SR-G: Trihalomethanes (THM)									
Chloroform	67-66-3	5.0	µg/L	<5.0					
Bromodichloromethane	75-27-4	5.0	µg/L	<5.0					
EP-074_SR-I: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	µg/L	<5.0					
EP-080_SRS: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%	**96.3**					
Toluene-D8	2037-26-5	0.1	%	**109**					
4-Bromofluorobenzene	460-00-4	0.1	%	**105**					
EP-074_SR-S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%	**96.3**					
Toluene-D8	2037-26-5	0.1	%	**109**					
4-Bromofluorobenzene	460-00-4	0.1	%	**105**					

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190160)								
HK1616057-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	13.1	13.1	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EG: Metals and Major Cations (QC Lot: 4195417)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 4195417) - Continued								
HK1616057-002	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	5	5	0.0
		EG020: Barium	7440-39-3	1	mg/kg	35	36	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	8	7	0.0
		EG020: Lead	7439-92-1	1	mg/kg	30	28	5.6
		EG020: Manganese	7439-96-5	1	mg/kg	356	374	5.1
		EG020: Molybdenum	7439-98-7	1	mg/kg	2	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
		EG020: Tin	7440-31-5	1	mg/kg	3	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	54	56	4.2
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								
HK1615791-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177) - Continued								
HK1615791-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)								
HK1615791-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EG: Metals and Major Cations (QC Lot: 4195417)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	98.6	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	94.6	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	91.7	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	93.1	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	83.5	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	85.9	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.5	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	98.5	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	103	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	90.1	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	86.0	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	91.9	----	78	110	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4195417) - Continued											
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	88.5	----	80	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	82.2	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	84.1	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	85.1	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	101	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	75	122	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	96.8	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	86.9	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	99.7	----	67	118	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	88.5	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	85.2	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	85.4	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	86.2	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	84.0	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.0	----	56	126	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4188020)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	83.6	----	73	122	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4188017)											
Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	80.8	----	67	130	----	----
Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	93.6	----	76	127	----	----
Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	85.5	----	84	120	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	94.7	----	80	128	----	----
Styrene	100-42-5	0.5	µg/L	<0.5	2 µg/L	91.8	----	76	120	----	----
ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	87.2	----	84	125	----	----
Xylenes (Total)	----	2	µg/L	<2	6 µg/L	92.2	----	86	123	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4188017)											
2-Propanone (Acetone)	67-64-1	5	µg/L	<5	20 µg/L	97.4	----	65	140	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	93.1	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4188017)											
Methylene chloride	75-09-2	5	µg/L	<5	2 µg/L	92.9	----	76	128	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	86.6	----	68	121	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	84.4	----	75	118	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4188017)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	91.7	----	66	134	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	83.5	----	71	125	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4188017)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	90.7	----	65	121	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4195417)										
HK1616057-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	91.6	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	86.7	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	97.5	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	82.0	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	101	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	113	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	93.8	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	80.0	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	86.7	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%) Low	High
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

Compound	CAS Number	Recovery Limits (%) Low	High
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 9
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616270
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Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 25-APR-2016
Order number	: ----			Issue Date	: 10-MAY-2016
C-O-C number	: H031683			No. of samples received	: 3
Site	: ----			No. of samples analysed	: 3

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 04-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616270

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	**Manager - Organics**	**Organics**
Wong Wing, Kenneth	**Manager - Metals**	**Inorganics**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP2 1.5M Client sampling date / time: [25-APR-2016] HK1616270-001	TP2 3M [25-APR-2016] HK1616270-002	TP3A 3M [25-APR-2016] HK1616270-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**15.3**	**11.1**	**19.6**		
EG: Metals and Major Cations								
EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	<1		
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	**10**	**4**		
EG020: Barium	7440-39-3	1	mg/kg	**133**	**18**	**30**		
EG020: Cadmium	7440-43-9	0.2	mg/kg	**0.2**	**0.6**	<0.2		
EG020: Cobalt	7440-48-4	1	mg/kg	**5**	**2**	**2**		
EG020: Copper	7440-50-8	1	mg/kg	**8**	**5**	**9**		
EG020: Lead	7439-92-1	1	mg/kg	**249**	**39**	**37**		
EG020: Manganese	7439-96-5	1	mg/kg	**1800**	**573**	**368**		
EG020: Mercury	7439-97-6	0.05	mg/kg	**0.07**	<0.05	**0.10**		
EG020: Molybdenum	7439-98-7	1	mg/kg	**3**	**2**	**2**		
EG020: Nickel	7440-02-0	1	mg/kg	**3**	**1**	**3**		
EG020: Tin	7440-31-5	1	mg/kg	**9**	**6**	**6**		
EG020: Zinc	7440-66-6	1	mg/kg	**56**	**74**	**63**		
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**6**	**2**	**5**		
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1		
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500		
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500		
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500		
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500		
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500		
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500		
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50		
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200		
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00		

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: TP2 1.5M Client sampling date / time: [25-APR-2016] HK1616270-001	Client sample ID: TP2 3M Client sampling date / time: [25-APR-2016] HK1616270-002	Client sample ID: TP3A 3M Client sampling date / time: [25-APR-2016] HK1616270-003		
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	<2.0		
EP-074_SR-B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50		
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5		
EP-074_SR-E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	<0.5		
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	<0.1		
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	<0.04		
EP-074_SR-G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04	<0.04		
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	<0.1		
EP-074_SR-I: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**106**	**94.1**	**99.9**		
4-Terphenyl-d14	1718-51-0	0.1	%	**121**	**105**	**112**		
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	**98.2**	**98.8**	**100**		
Toluene-D8	2037-26-5	0.1	%	**107**	**108**	**106**		
4-Bromofluorobenzene	460-00-4	0.1	%	**100**	**101**	**102**		
EP-074_SR-S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	**98.2**	**98.8**	**100**		
Toluene-D8	2037-26-5	0.1	%	**107**	**108**	**106**		
4-Bromofluorobenzene	460-00-4	0.1	%	**100**	**101**	**102**		

Laboratory Duplicate (DUP) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4191126)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4191126) - Continued								
HK1616174-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	11.2	11.4	0.9
HK1616271-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	14.2	15.2	6.9
EG: Metals and Major Cations (QC Lot: 4190094)								
HK1616174-001	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	6	6	0.0
		EG020: Barium	7440-39-3	1	mg/kg	12	11	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	27	27	0.0
		EG020: Copper	7440-50-8	1	mg/kg	13	12	11.5
		EG020: Lead	7439-92-1	1	mg/kg	79	73	7.9
		EG020: Manganese	7439-96-5	1	mg/kg	74	77	3.8
		EG020: Molybdenum	7439-98-7	1	mg/kg	3	3	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	2	1	0.0
		EG020: Tin	7440-31-5	1	mg/kg	1	1	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	37	39	5.7
HK1616220-002	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	15.2	15.3	0.7
		EG020: Barium	7440-39-3	0.5	mg/kg	126	113	10.3
		EG020: Cobalt	7440-48-4	0.5	mg/kg	27.4	31.5	13.7
		EG020: Manganese	7439-96-5	0.5	mg/kg	2430	2850	16.0
		EG020: Tin	7440-31-5	0.5	mg/kg	3950	4320	9.0
		EG020: Antimony	7440-36-0	1	mg/kg	459	520	12.4
		EG020: Arsenic	7440-38-2	1	mg/kg	28	33	15.2
		EG020: Copper	7440-50-8	1	mg/kg	605	674	10.8
		EG020: Lead	7439-92-1	1	mg/kg	60	59	0.0
		EG020: Molybdenum	7439-98-7	1	mg/kg	32	31	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	120	117	3.1
		EG020: Zinc	7440-66-6	1	mg/kg	13000	14400	10.4
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472) - Continued								
HK1615957-001	Anonymous	**Pyrene**	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								
HK1615791-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)								
HK1616271-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)								
HK1616271-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190094)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	98.8	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	90.4	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	90.6	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	86.2	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	87.6	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	87.3	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	89.3	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	95.8	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	100	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	89.0	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	87.9	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	93.6	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	90.7	----	80	122	----	----
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176) - Continued											
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4190191)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	93.9	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	94.9	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	93.7	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	95.3	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	93.2	----	75	122	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	88.4	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	93.0	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4190191)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	104	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	97.1	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4190191)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	90.9	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	86.8	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	87.2	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4190191)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	94.0	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	87.5	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4190191)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	86.4	----	56	126	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4190094)										
HK1616056-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	88.6	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	90.6	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	93.5	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	86.6	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	92.4	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	82.4	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%)* *Low*	*High*
EP-080_SRS: TPH(Volatile)/BTEX Surrogate - Continued			
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Trial Pit - TP4A

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1615966
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Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 21-APR-2016
Order number	: ----			Issue Date	: 09-MAY-2016
C-O-C number	: H029594			No. of samples received	: 2
Site	: ----			No. of samples analysed	: 2

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	Manager - Organics	Organics
Wong Wing, Kenneth	Manager - Metals	Inorganics

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 04-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1615966

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
Water sample(s) analysed and reported on an as received basis.
Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.
Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP4A 0.5M Client sampling date / time: 21-APR-2016 14:11 HK1615966-001
EA/ED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**12.1**
EG: Metals and Major Cations				
EG020: Antimony	7440-36-0	1	mg/kg	<1
EG020: Arsenic	7440-38-2	1	mg/kg	**24**
EG020: Barium	7440-39-3	1	mg/kg	**62**
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2
EG020: Cobalt	7440-48-4	1	mg/kg	**2**
EG020: Copper	7440-50-8	1	mg/kg	**4**
EG020: Lead	7439-92-1	1	mg/kg	**54**
EG020: Manganese	7439-96-5	1	mg/kg	**507**
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05
EG020: Molybdenum	7439-98-7	1	mg/kg	**4**
EG020: Nickel	7440-02-0	1	mg/kg	**2**
EG020: Tin	7440-31-5	1	mg/kg	**2**
EG020: Zinc	7440-66-6	1	mg/kg	**39**
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**3**
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.500	mg/kg	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate				
Phenol	108-95-2	0.50	mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00

Sub-Matrix: SOIL			Client sample ID	TP4A 0.5M				
			Client sampling date / time	21-APR-2016 14:11				
Compound	CAS Number	LOR	Unit	HK1615966-001				
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
Styrene	100-42-5	0.5	mg/kg	<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
Xylenes (Total)	----	2.0	mg/kg	<2.0				
EP-074_SR-B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50				
2-Butanone (MEK)	78-93-3	5	mg/kg	<5				
EP-074_SR-E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.5	mg/kg	<0.5				
Trichloroethene	79-01-6	0.1	mg/kg	<0.1				
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04				
EP-074_SR-G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04				
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1				
EP-074_SR-I: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5				
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**98.7**				
4-Terphenyl-d14	1718-51-0	0.1	%	**107**				
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	**96.9**				
Toluene-D8	2037-26-5	0.1	%	**108**				
4-Bromofluorobenzene	460-00-4	0.1	%	**102**				
EP-074_SR-S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	**96.9**				
Toluene-D8	2037-26-5	0.1	%	**108**				
4-Bromofluorobenzene	460-00-4	0.1	%	**102**				

Sub-Matrix: WATER				Client sample ID	TRIP BLANK				
				Client sampling date / time	[21-APR-2016]				
Compound	CAS Number	LOR	Unit	HK1615966-002					
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L	<20					
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	5.0	µg/L	<5.0					
Toluene	108-88-3	5.0	µg/L	<5.0					
Ethylbenzene	100-41-4	5.0	µg/L	<5.0					
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10					
Styrene	100-42-5	5.0	µg/L	<5.0					
ortho-Xylene	95-47-6	5.0	µg/L	<5.0					
Xylenes (Total)	----	20	µg/L	<20					
EP-074_SR-B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	500	µg/L	<500					
2-Butanone (MEK)	78-93-3	50	µg/L	<50					
EP-074_SR-E: Halogenated Aliphatics									
Methylene chloride	75-09-2	50	µg/L	<50					
Trichloroethene	79-01-6	5.0	µg/L	<5.0					
Tetrachloroethene	127-18-4	5.0	µg/L	<5.0					
EP-074_SR-G: Trihalomethanes (THM)									
Chloroform	67-66-3	5.0	µg/L	<5.0					
Bromodichloromethane	75-27-4	5.0	µg/L	<5.0					
EP-074_SR-I: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	µg/L	<5.0					
EP-080_SRS: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%	**96.0**					
Toluene-D8	2037-26-5	0.1	%	**110**					
4-Bromofluorobenzene	460-00-4	0.1	%	**104**					
EP-074_SR-S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%	**96.0**					
Toluene-D8	2037-26-5	0.1	%	**110**					
4-Bromofluorobenzene	460-00-4	0.1	%	**104**					

Laboratory Duplicate (DUP) Report

Matrix: SOIL

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190158)								
HK1615708-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	12.2	12.2	0.0
HK1615794-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	18.7	18.8	0.0
EG: Metals and Major Cations (QC Lot: 4188647)								
HK1615957-001	Anonymous	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0

Matrix: SOIL

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 4188647) - Continued								
HK1615957-001	Anonymous	**EG020: Antimony**	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	4	4	0.0
		EG020: Barium	7440-39-3	1	mg/kg	33	34	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	7	7	0.0
		EG020: Lead	7439-92-1	1	mg/kg	32	32	0.0
		EG020: Manganese	7439-96-5	1	mg/kg	353	335	5.2
		EG020: Molybdenum	7439-98-7	1	mg/kg	2	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
		EG020: Tin	7440-31-5	1	mg/kg	3	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	52	53	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	TP4A 0.5M	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								
HK1615791-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)								
HK1615791-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4188647)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	96.0	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	89.4	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	92.4	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	87.3	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	90.0	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	88.2	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	88.6	----	81	109	----	----
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	94.1	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	97.4	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	88.5	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	88.9	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	90.8	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	91.5	----	80	122	----	----
EG: Metals and Major Cations (QC Lot: 4191160)											

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160) - Continued											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	82.2	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	84.1	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	85.1	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	101	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	75	122	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	96.8	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	86.9	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	99.7	----	67	118	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	88.5	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	85.2	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	85.4	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	86.2	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	84.0	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.0	----	56	126	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4188020)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	83.6	----	73	122	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4188017)											
Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	80.8	----	67	130	----	----
Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	93.6	----	76	127	----	----
Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	85.5	----	84	120	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	94.7	----	80	128	----	----
Styrene	100-42-5	0.5	µg/L	<0.5	2 µg/L	91.8	----	76	120	----	----
ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	87.2	----	84	125	----	----
Xylenes (Total)	----	2	µg/L	<2	6 µg/L	92.2	----	86	123	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4188017)											
2-Propanone (Acetone)	67-64-1	5	µg/L	<5	20 µg/L	97.4	----	65	140	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	93.1	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4188017)											
Methylene chloride	75-09-2	5	µg/L	<5	2 µg/L	92.9	----	76	128	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	86.6	----	68	121	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	84.4	----	75	118	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4188017)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	91.7	----	66	134	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	83.5	----	71	125	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4188017)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	90.7	----	65	121	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4188647)										
HK1615788-001	Anonymous	**EG020: Antimony**	7440-36-0	5 mg/kg	88.0	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	103	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	93.6	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	92.2	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	80.6	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	83.0	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	86.9	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	88.9	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	87.0	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%)* *Low*	*High*
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: **WATER**

Compound	*CAS Number*	*Recovery Limits (%)* *Low*	*High*
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: OVE ARUP & PARTNERS HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 9
Contact	: MR JACKY CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616057
Address	: LEVEL 5 FESTIVAL WALK, 80 TAT CHEE AVENUE, KOWLOON TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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Telephone	: +852 3447 6051	Telephone	: +852 2610 1044		
Facsimile	: +852 2268 3966	Facsimile	: +852 2610 2021		
Project	: TKO 137 MAGAZINE SITE	Quote number	: ----	Date Samples Received	: 22-APR-2016
Order number	: ----			Issue Date	: 09-MAY-2016
C-O-C number	: H029597			No. of samples received	: 2
Site	: ----			No. of samples analysed	: 2

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 06-MAY-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616057

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Ka Yu, Karen	Manager - Organics	Organics
Wong Wing, Kenneth	Manager - Metals	Inorganics

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TP4A 1.5M Client sampling date / time: [22-APR-2016] HK1616057-001	Client sample ID: TP4A 2.4M Client sampling date / time: [22-APR-2016] HK1616057-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**13.1**	**14.1**			
EG: Metals and Major Cations								
EG020: Antimony	7440-36-0	1	mg/kg	<1	<1			
EG020: Arsenic	7440-38-2	1	mg/kg	**5**	**5**			
EG020: Barium	7440-39-3	1	mg/kg	**68**	**35**			
EG020: Cadmium	7440-43-9	0.2	mg/kg	**0.3**	<0.2			
EG020: Cobalt	7440-48-4	1	mg/kg	**2**	**2**			
EG020: Copper	7440-50-8	1	mg/kg	**10**	**8**			
EG020: Lead	7439-92-1	1	mg/kg	**42**	**30**			
EG020: Manganese	7439-96-5	1	mg/kg	**513**	**356**			
EG020: Mercury	7439-97-6	0.05	mg/kg	**0.08**	<0.05			
EG020: Molybdenum	7439-98-7	1	mg/kg	**1**	**2**			
EG020: Nickel	7440-02-0	1	mg/kg	**3**	**3**			
EG020: Tin	7440-31-5	1	mg/kg	**4**	**3**			
EG020: Zinc	7440-66-6	1	mg/kg	**66**	**54**			
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	**6**	**6**			
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1			
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500			
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500			
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500			
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500			
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500			
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500			
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500			
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500			
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500			
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500			
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500			
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500			
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500			
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500			
Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500			
Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500			
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50			
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200			
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00			

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: TP4A 1.5M Client sampling date / time: [22-APR-2016] HK1616057-001	Client sample ID: TP4A 2.4M Client sampling date / time: [22-APR-2016] HK1616057-002			
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0			
EP-074_SR-B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50			
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5			
EP-074_SR-E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5			
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1			
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04			
EP-074_SR-G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04			
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1			
EP-074_SR-I: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5			
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**103**	**100**			
4-Terphenyl-d14	1718-51-0	0.1	%	**109**	**104**			
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	**96.9**	**96.3**			
Toluene-D8	2037-26-5	0.1	%	**106**	**108**			
4-Bromofluorobenzene	460-00-4	0.1	%	**103**	**101**			
EP-074_SR-S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	**96.9**	**96.3**			
Toluene-D8	2037-26-5	0.1	%	**106**	**108**			
4-Bromofluorobenzene	460-00-4	0.1	%	**103**	**101**			

Laboratory Duplicate (DUP) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190160)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4190160) - Continued								
HK1616057-001	TP4A 1.5M	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	13.1	13.1	0.0
EG: Metals and Major Cations (QC Lot: 4191160)								
HK1615966-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
HK1616182-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	1	mg/kg	<1	<1	0.0
EG: Metals and Major Cations (QC Lot: 4195417)								
HK1616057-002	TP4A 2.4M	**EG020: Mercury**	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	1	mg/kg	<1	<1	0.0
		EG020: Arsenic	7440-38-2	1	mg/kg	5	5	0.0
		EG020: Barium	7440-39-3	1	mg/kg	35	36	0.0
		EG020: Cobalt	7440-48-4	1	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	8	7	0.0
		EG020: Lead	7439-92-1	1	mg/kg	30	28	5.6
		EG020: Manganese	7439-96-5	1	mg/kg	356	374	5.1
		EG020: Molybdenum	7439-98-7	1	mg/kg	2	2	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
		EG020: Tin	7440-31-5	1	mg/kg	3	3	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	54	56	4.2
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Naphthalene**	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a.h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)								
HK1615957-001	Anonymous	**Hexachlorobenzene (HCB)**	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)								

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176) - Continued								
HK1615791-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)								
HK1615791-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.0
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Benzene**	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
		Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	0.0
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)								
HK1615791-001	Anonymous	**2-Butanone (MEK)**	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Tetrachloroethene**	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
		Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Chloroform**	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)								
HK1615791-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	101	----	92	122	----	----
EG: Metals and Major Cations (QC Lot: 4195417)											
EG020: Antimony	7440-36-0	1	mg/kg	<1	5 mg/kg	98.6	----	77	107	----	----
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	94.6	----	75	111	----	----
EG020: Barium	7440-39-3	1	mg/kg	<1	5 mg/kg	91.7	----	79	113	----	----
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	93.1	----	79	109	----	----
EG020: Cobalt	7440-48-4	1	mg/kg	<1	5 mg/kg	83.5	----	75	117	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	85.9	----	79	109	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.5	----	81	109	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4195417) - Continued											
EG020: Manganese	7439-96-5	1	mg/kg	<1	5 mg/kg	98.5	----	78	122	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	103	----	75	113	----	----
EG020: Molybdenum	7439-98-7	1	mg/kg	<1	5 mg/kg	90.1	----	81	107	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	86.0	----	77	111	----	----
EG020: Tin	7440-31-5	1	mg/kg	<1	5 mg/kg	91.9	----	78	110	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	88.5	----	80	122	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 4189472)											
Naphthalene	91-20-3	25	µg/kg	<50	500 µg/kg	104	----	71	116	----	----
Acenaphthylene	208-96-8	25	µg/kg	<50	500 µg/kg	83.1	----	52	112	----	----
Acenaphthene	83-32-9	25	µg/kg	<50	500 µg/kg	100	----	71	112	----	----
Fluorene	86-73-7	25	µg/kg	<50	500 µg/kg	96.8	----	72	109	----	----
Phenanthrene	85-01-8	25	µg/kg	<50	500 µg/kg	98.9	----	74	115	----	----
Anthracene	120-12-7	25	µg/kg	<50	500 µg/kg	81.1	----	50	112	----	----
Fluoranthene	206-44-0	25	µg/kg	<50	500 µg/kg	112	----	71	118	----	----
Pyrene	129-00-0	25	µg/kg	<50	500 µg/kg	115	----	72	119	----	----
Benz(a)anthracene	56-55-3	25	µg/kg	<50	500 µg/kg	91.3	----	68	109	----	----
Chrysene	218-01-9	25	µg/kg	<50	500 µg/kg	107	----	78	117	----	----
Benzo(b)fluoranthene	205-99-2	25	µg/kg	<50	500 µg/kg	88.4	----	63	121	----	----
Benzo(k)fluoranthene	207-08-9	25	µg/kg	<50	500 µg/kg	110	----	74	123	----	----
Benzo(a)pyrene	50-32-8	25	µg/kg	<50	500 µg/kg	76.0	----	58	112	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	25	µg/kg	<50	500 µg/kg	99.3	----	61	129	----	----
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	500 µg/kg	85.0	----	58	129	----	----
Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	500 µg/kg	80.3	----	52	135	----	----
EP-076HK: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 4189472)											
Phenol	108-95-2	25	µg/kg	<500	500 µg/kg	107	----	72	131	----	----
Hexachlorobenzene (HCB)	118-74-1	25	µg/kg	<50	500 µg/kg	92.1	----	67	108	----	----
Bis(2-ethylhexyl)phthalate	117-81-7	25	µg/kg	<1000	500 µg/kg	102	----	87	123	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	73	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	100	----	71	117	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	90.2	----	77	119	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177)											
Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	82.2	----	75	113	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	84.1	----	77	126	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	85.1	----	80	127	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.50 mg/kg	101	----	85	138	----	----
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	75	122	----	----

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 4187177) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	89.0	----	77	132	----	----
Xylenes (Total)	----	1.0	mg/kg	<1.0	0.75 mg/kg	96.8	----	83	135	----	----
EP-074_SR-B: Oxygenated Compounds (QC Lot: 4187177)											
2-Propanone (Acetone)	67-64-1	2	mg/kg	<2	2.5 mg/kg	86.9	----	74	128	----	----
2-Butanone (MEK)	78-93-3	2	mg/kg	<2	2.5 mg/kg	99.7	----	67	118	----	----
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 4187177)											
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	88.5	----	61	147	----	----
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	85.2	----	75	111	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	85.4	----	79	126	----	----
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 4187177)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	86.2	----	75	116	----	----
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	84.0	----	80	118	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 4187177)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.0	----	56	126	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 4191160)										
HK1615957-001	Anonymous	**EG3060: Hexavalent Chromium**	18540-29-9	2.5 mg/kg	100	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 4195417)										
HK1616057-001	TP4A 1.5M	**EG020: Antimony**	7440-36-0	5 mg/kg	91.6	----	75	125	----	----
		EG020: Arsenic	7440-38-2	5 mg/kg	86.7	----	75	125	----	----
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Cadmium	7440-43-9	5 mg/kg	97.5	----	75	125	----	----
		EG020: Cobalt	7440-48-4	5 mg/kg	82.0	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	101	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	113	----	75	125	----	----
		EG020: Molybdenum	7439-98-7	5 mg/kg	93.8	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	80.0	----	75	125	----	----
		EG020: Tin	7440-31-5	5 mg/kg	86.7	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187176)										
HK1615794-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	101	----	50	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	98.5	----	50	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 4187178)										
HK1615794-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	95.8	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%) Low	High
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121